EZbus Quickstart + Tutorial Manual V. 1.1

The EZbus operating sytem is regularly enhanced and updated.
As such, the information contained in this manual is subject to change.
Please check the Event Electronics Web site, www.event1.com, for the most up-to-date EZbus documentation.

To receive a printed copy of this Quickstart + Tutorials Manual, please fill out and mail the coupon that came packaged with your EZbus. If you prefer, you can submit your request via the Web at www.event1.com/support/manual.html.

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# EZbus

## Installation and Quickstart Guides

## Operational Tutorials

EVENT ELECTRONICS

# EZbus Installation and QuickStart Guides/Operational Tutorials

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Santa Barbara, CA 93140-4189

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# Important Safety Instructions

- Please read all safety and operating instructions before using this product.
- Please note and follow all warnings printed on the EZbus and in the EZbus Owner's Manual.
- Keep all liquids away from this product. Do not operate this product in environments where it may be subjected to moisture.
- Do not operate this product in environments where it may be subjected to excessive heat.
- This product is designed to be operated only at the voltage specified on the individual unit (100V, 110V, or 240V). Failure to operate the unit at the specified voltage may result in severe damage to the unit, and risk of fire or electrical shock. Operating the unit at the improper voltage will void the factory warranty.
- This unit is equipped with a grounding connector and a power cord with grounding plug. Always make sure the unit is plugged into an electrical outlet that is properly installed and grounded. Never purposely defeat the grounding properties of the unit by modifying the power cable or using a "ground lift" device. **Operating the unit without proper grounding could result in electric shock, severe injury, or death.**
- Use care in routing the power cord so as to make it unlikely to be stepped upon, pinched, or bent.
- This unit contains no user-serviceable parts. Refer all servicing to qualified personnel. Do not attempt to service this unit yourself. Opening the case of this unit will expose you to dangerous voltages that could result in electric shock, injury, or death.
- Refer this unit for servicing to qualified personnel if:
  - Liquid has spilled into the unit, or the unit has been exposed to excessive moisture
  - The unit has been dropped or physically damaged
  - A marked change in performance is noticed

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# Getting Started

Congratulations on your purchase of a truly innovative, next-generation piece of audio equipment. Though simple in appearance, the EZbus is an extraordinarily powerful device, combining three essential functions—a Computer Audio Recording Interface, Software Control Surface, and Stand-Alone Digital Mixer—into one convenient, low cost package. Whether you're adding the EZbus to your existing rig or making it the centerpiece of a new setup, we're sure you'll find it a remarkably flexible and highly versatile tool, perfectly suited to a wide variety of music recording, editing, mixing, and live performance applications.

# Contents of the EZbus Box

When you open the EZbus box you should find the following:

- The EZbus unit wrapped in a protective plastic cover
- A compact disc containing the EZbus Windows USB audio/MIDI drivers; a Microsoft Windows system executable file; control surface Profiles for a variety of software-based audio/MIDI recording programs, plug-ins, and virtual instruments; demo versions of digital audio recording, editing, and processing software and virtual synthesizers from a variety of manufacturers; a PDF version of this manual; a PDF version of the EZbus Reference Manual; hyperlinks to our Warranty Registration and Technical Support Web pages
- An EZbus USB cable
- An IEC grounded power cable
- This EZbus Owner's Manual

# Using the EZbus with a Computer

## Computer System Requirements

The EZbus functions as a stand-alone digital mixer right out of the box, with no special setup or connection to a computer required. However, to use the EZbus as an audio recording interface for your computer and/or as a software control surface for your recording software, plug-ins, and virtual instruments, you'll need the following:

### For use with an IBM-PC/Compatible

- An IBM-PC or compatible computer with at least one built-in USB port, a genuine Intel-brand Pentium microprocessor (Pentium II 300 or better highly recommended) and Intel brand USB Chipset, or a genuine AMD microprocessor and a motherboard with the AMD 760 or AMD 760 MP chipsets, and minimum 64Mb RAM (128Mb or more highly recommended) running Windows 98 SE/ME or newer. Windows ME, along with the supplied Windows system file (on the EZbus installation CD) or newer is required if you wish to have both audio and MIDI data transmitted and received over USB. You can use Windows 98 SE, but the EZbus will not transmit or receive MIDI data over USB. (MIDI via a PCI-based MIDI interface, however, is supported.) Please consult the EZbus technical support pages on the Event Web site, www.event1.com, for the latest information on Windows system compatibility.
- A fast, high-capacity IDE or SCSI hard disk drive for storing audio files
- Peripheral audio equipment, such as a monitor speakers, Alesis ADAT® digital tape recorder, MIDI keyboard, microphone, etc.

**IMPORTANT NOTE:** Event Electronics makes no claims as to the suitability for use with EZbus computer systems that do not conform to the requirements listed above. Non-conforming systems include those systems based on

non-Intel- or AMD- brand processors and USB chipsets, even when such systems claim performance specifications that equal or exceed those of Intel- or AMD- brand chipsets. Furthermore, Event Electronics cannot provide customer support to end users that are having difficulty making the EZbus work reliably with non-conforming systems. Support for the EZbus in stand-alone mode is available to all users, regardless of their computer system configuration.

## For use with an Apple Macintosh

- A Macintosh computer, iMac or newer, with at least one built-in USB port, and minimum 64MB RAM running Mac OS 9.04 or newer. A Mac OS newer than OS X 10.1 is required if you wish to have both audio and MIDI data transmitted and received over USB. You can use Mac OS OS 9.04 through OS X 10.1, but the EZbus will not transmit or receive MIDI data over USB. MIDI via a Macintosh-compatible MIDI interface, however, is supported.
- A fast, high-capacity IDE or SCSI hard disk drive for storing audio files
- Peripheral audio equipment, such as a monitor speakers, Alesis ADAT® digital tape recorder, MIDI keyboard, microphone, etc.

# Installing the EZbus Software Drivers and Applications

### IBM-PC/Compatible

If your computer system meets the hardware requirements listed on Page 10, the next step is to install the Windows ME update file and USB Audio and MIDI drivers that are included on the EZbus Installation CD.

### IMPORTANT

**Windows® ME users *must* update their operating systems as detailed below *before* connecting the EZbus to a computer via USB. Please follow these instructions *precisely* to avoid problems with your computer operating system configuration.**

- Prior to installing the Windows ME update, be certain that the EZbus is **NOT CONNECTED** to your computer via USB.
- Insert the EZbus Installation CD into your computer's CD-ROM drive.
- Locate the Microsoft Windows ME update file named 280127USAM.exe on the CD-ROM. Double-click on the file to install it. When the installation is complete, reboot your computer.
- Locate the Setup.exe file on the EZbus Installation CD. Double-click on the file to initiate the setup routine. Follow the on-screen prompts in the Setup Wizard, then click FINISH to reboot your computer when the setup routine is complete.
- Connect the EZbus to your computer using the supplied USB cable, and apply power to the EZbus.
- When the "Add New Hardware" Wizard appears, click NEXT to have Windows automatically search for the EZbus driver.
- In the next window, click FINISH. This completes the EZbus installation.

### Apple Macintosh

According to the operating system in use, one of the two following conditions will apply:

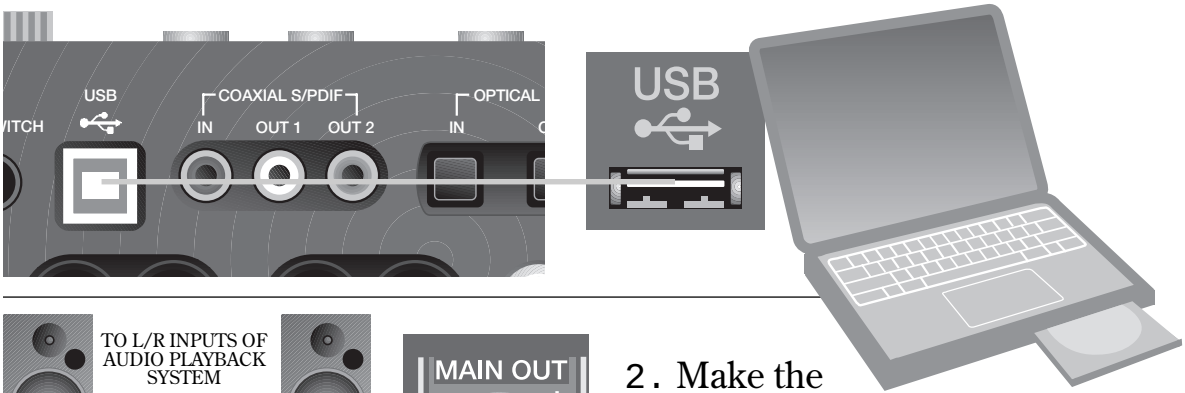
- With any Mac OS from OS 9.04 up to and including OS X 10.1, the EZbus will automatically be recognized as a USB audio device, with no additional drivers required. **Note:** You must have the USB Configuration mode in the EZbus System menu set to Audio Only. To use MIDI, connect MIDI 2 Out on the EZbus rear panel to your Macintosh-compatible MIDI interface and follow the instructions included with your interface.
- With a Mac OS newer than OS X 10.1, the EZbus will automatically be recognized as a USB audio and MIDI device, with no additional drivers required. **Note:** You must have the USB Configuration mode in the EZbus System menu set to Audio+MIDI.

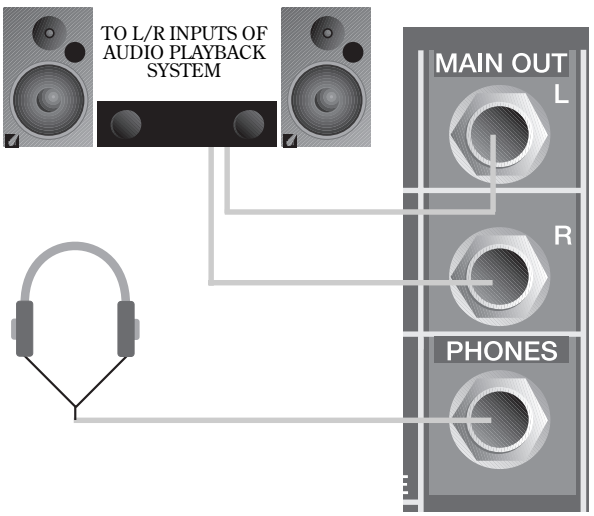
# EZbus QuickStart Guide 1:

# Using the EZbus as a Computer Audio Recording Interface

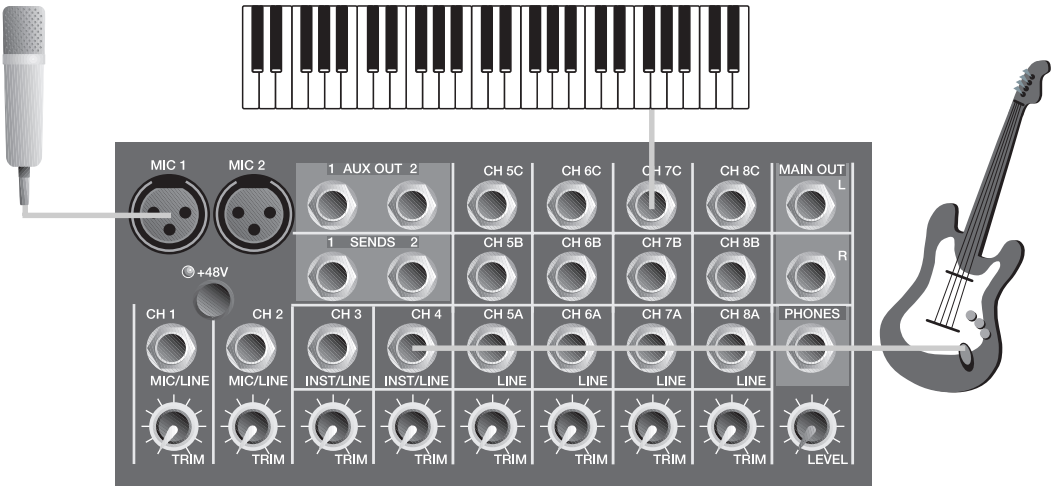
After installing the EZbus drivers and Windows system software as detailed in the preceding Installation Guide, follow these EZ steps to begin recording using the EZbus and your computer:

1. Connect the rear-panel USB port on the EZbus to the USB port on your computer using the enclosed USB cable.



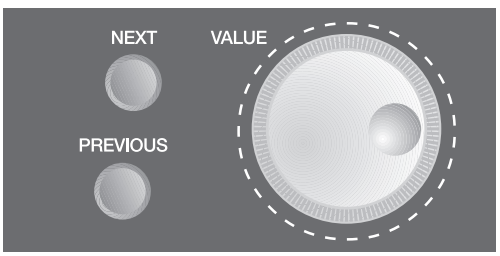

2. Make the audio connections to your playback system using the EZbus Main Out L and R jacks. The jacks accept balanced (TRS) or unbalanced (TS) ¼" phone connectors. If you prefer, you can plug headphones into the PHONES jack.

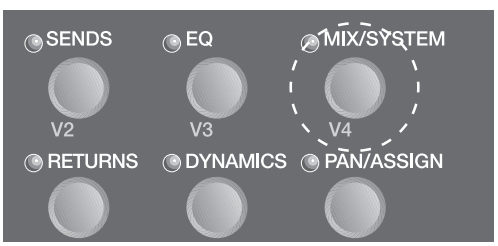



3. Connect an audio source, such as a microphone or keyboard, into one of the input channels labeled CH1 – CH8.

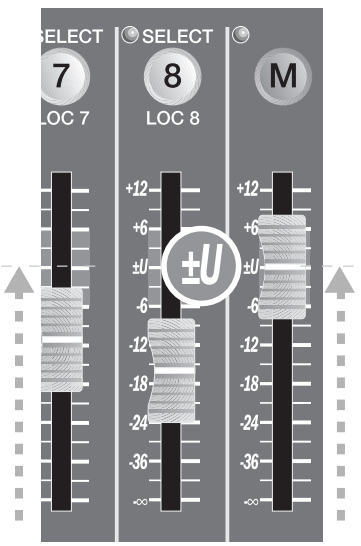
4. Plug the EZbus into a grounded AC outlet and turn on the power switch (located on the rear panel).

5. If any Mix other than Mix 00 is showing in the LCD, turn the VALUE wheel until Mix 00 appears, then double-click the MIX button to recall Mix 00.




6. Raise the Main fader and the input channel fader to their ±U (unity gain) marks.

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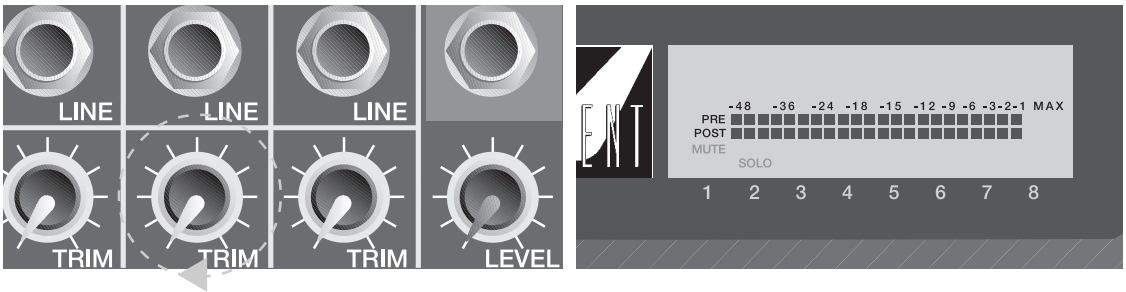


**7.** Adjust the input channel's TRIM control until your audio source signal registers just below **MAX** on the EZbus LCD.

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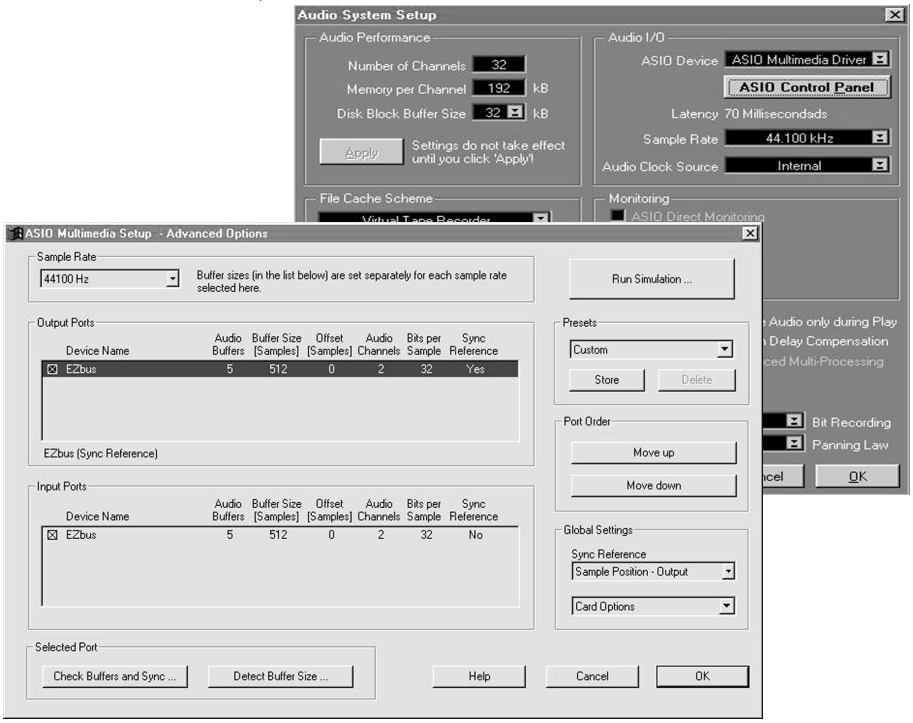
**8.** Launch your recording software and select the EZbus as its audio input. (See the owner's manual of your recording software for details.)




---

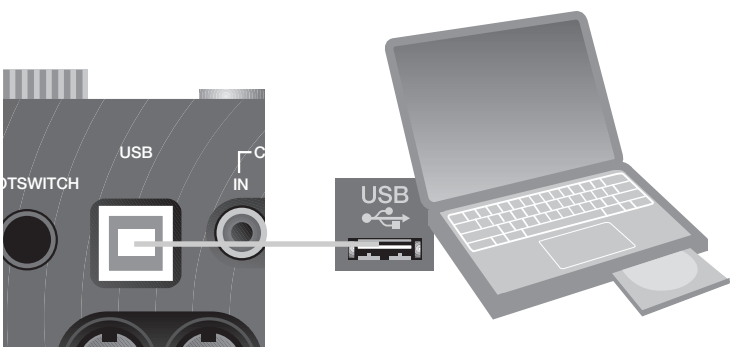
**9.** Make music!

# EZbus QuickStart Guide 2:

# Using the EZbus as a Software Control Surface

After installing the EZbus drivers and Windows system software as detailed in the Installation Guide on page 12, follow these EZ steps to start operating your software with the EZbus faders, switches, VALUE wheel, and transport controls.

**1.** Connect the rear-panel USB port on the EZbus to the USB port on your computer using the enclosed USB cable.

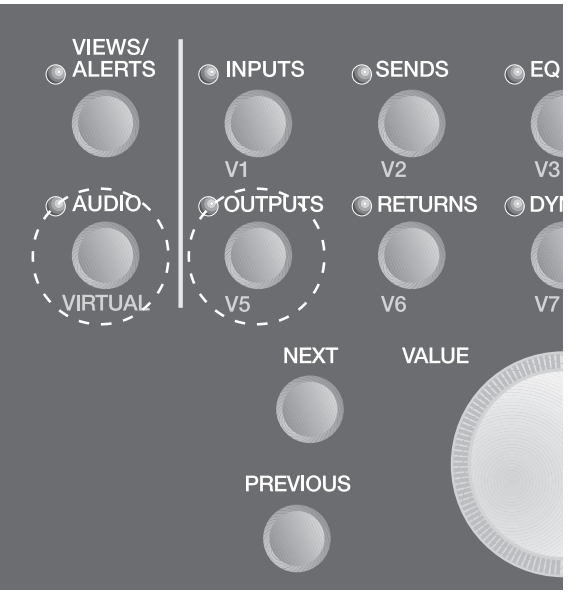



2. Plug the EZbus into a grounded AC outlet and turn on the power switch (located on the rear panel).

3. Launch your audio/MIDI software and select the EZbus as its MIDI input device.

*continued on next page*

4. Press the AUDIO/VIRTUAL button in the Master Control section to enter Virtual Control mode. The LED next to the button will turn off.




5. The EZbus comes filled with V Groups (control surface configurations) for a number of popular music applications. Press the "V" (virtual) button in the Master Control section to select the V Group for your software program. Each V button has four pages associated with it (P1, P2, P3, P4). Use the NEXT and PREVIOUS buttons to step through the pages.

6. In DAW applications, these EZbus V Groups contain setups for controlling the software's faders, pan, mute, solo, and transport functions. In the virtual instrument V Groups, the EZbus controls a variety of instrument parameters. The first page under button V1 contains a setup for Cubase VST.

```
Faders: VST Volume
Wheel: Ch 01 Pan
```

7. Enjoy!

## EZtip

**You can play the virtual instruments via MIDI as you control them by plugging your MIDI keyboard into either of the EZbus's rear-panel MIDI ports.**

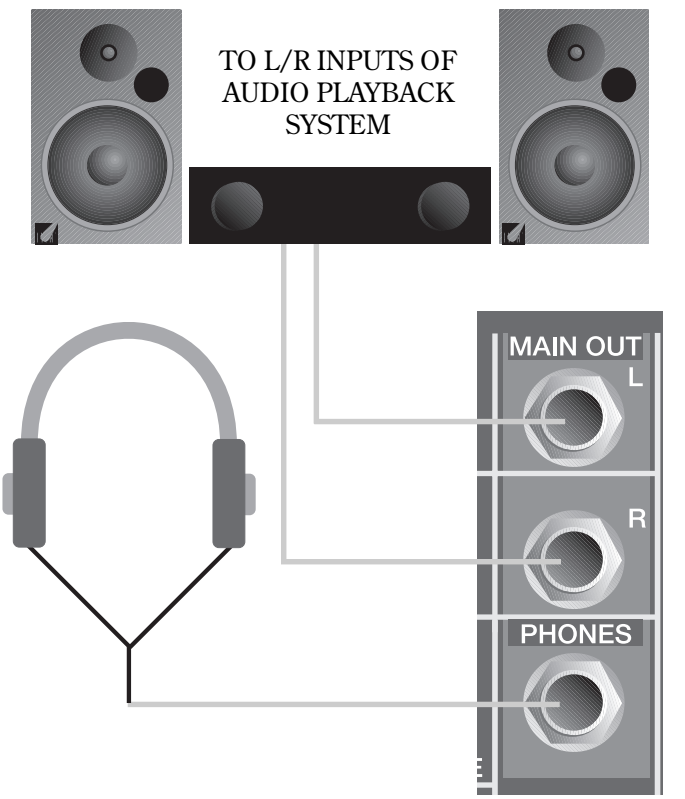
# EZbus QuickStart Guide 3:

# Part I. Using the EZbus as a Stand-Alone Digital Mixer—Live Performance

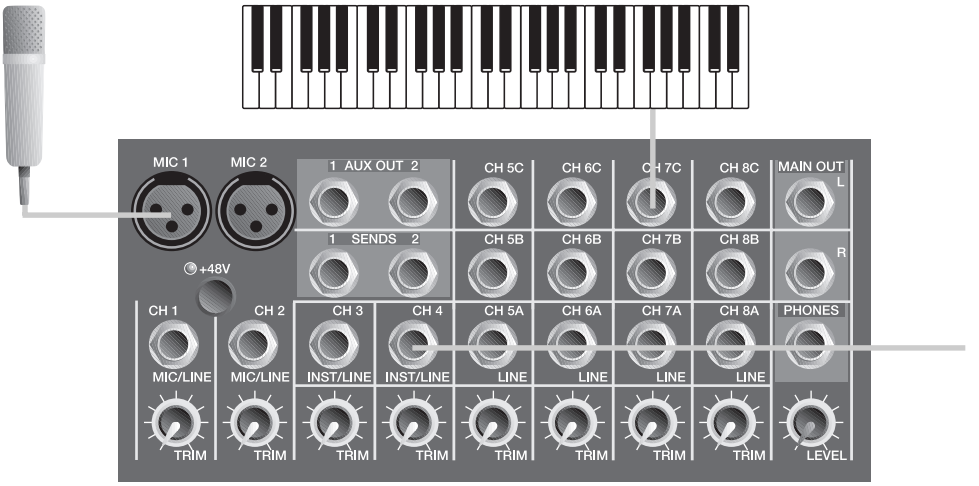
Follow these EZ steps to make the EZbus the center of your live performance rig:

---

1. Make the audio connections to your playback system using the EZbus Main Out L and R jacks. The jacks accept balanced (TRS) or unbalanced (TS) ¼" phone connectors. If you prefer, you can plug headphones into the PHONES jack. Both of these outputs carry the signal of the stereo Main Mix bus.

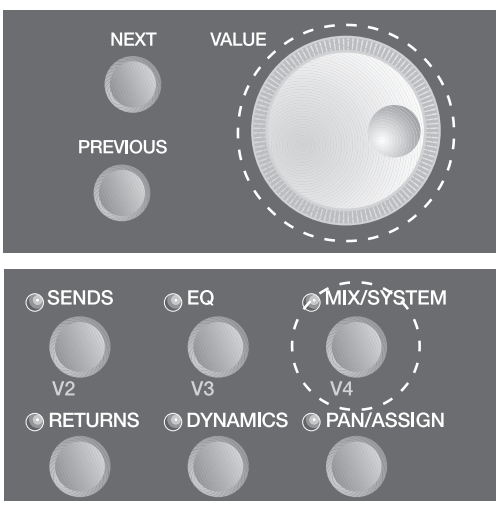


2. Connect an analog audio source, such as a microphone or keyboard, into one of the input channels labeled CH1 – CH8.

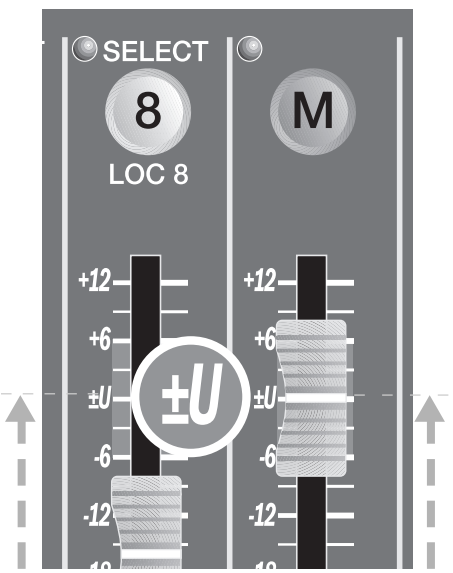


3. Plug the EZbus into a grounded AC outlet and turn on the power switch (located on the rear panel).

4. If any Mix other than Mix 00 is showing in the LCD, turn the VALUE wheel until Mix 00 appears, then double-click the MIX button to recall Mix 00.




5. Raise the Main fader and the input channel fader to their ±U (unity gain) marks.

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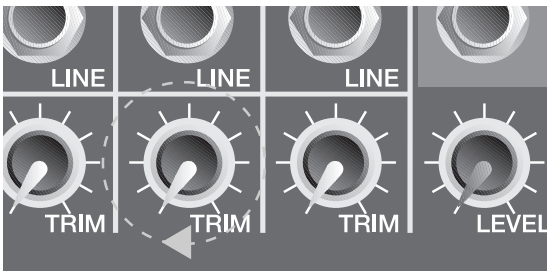
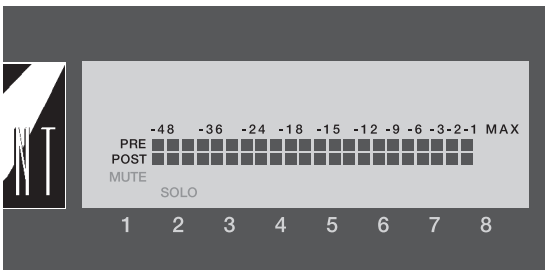



6. Adjust the input channel's TRIM control until your audio source signal registers just below **MAX** on the EZbus LCD.

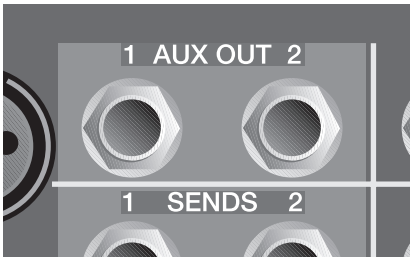
---

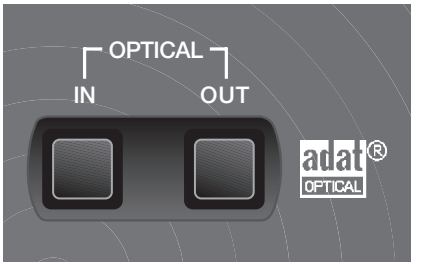
7. Start playing!

# Part II. Using the EZbus as a Stand-Alone Digital Mixer—Recording

Follow these EZ steps to use the EZbus in a recording setup:

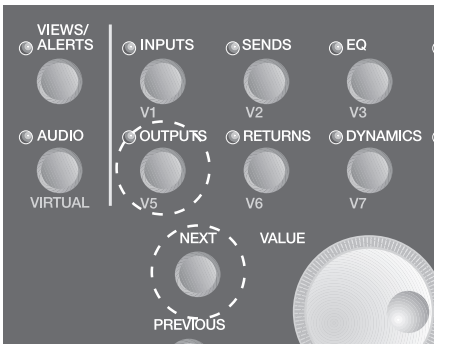
*Begin by following steps 1–7 of Part I (Page 20). Next:*



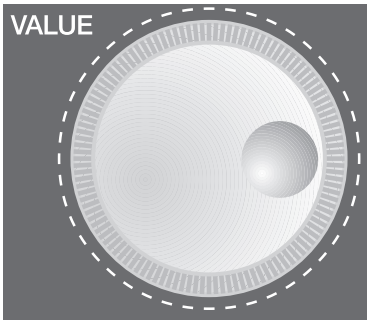

8. Make the analog audio connections to your recording system using the EZbus Aux 1 and 2 jacks. (These jacks will carry the signals you are going to record.) Multi-channel connections can be made via the ADAT Optical output, located on the EZbus rear panel. The optical jack can carry a variety of signals, including the direct outputs of Channels 1–8.

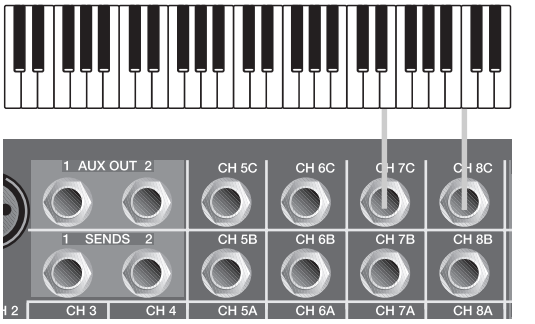
9. Press OUTPUTS in the Master Control Section, followed by the NEXT button repeatedly until the display shows:




```
Auxiliary Out Jacks
Source: Off
```

Turn the VALUE wheel to select the input of your source signals, in this example, Line inputs 7 and 8.




The display now reads:

```
Auxiliary Out Jacks
Source: Line 7&8
```

---

10. Make music!

# EZbus Overview

## EZbus System Architecture

To help you get the most out of your EZbus audio capabilities, both as a Computer Audio Interface and as a Stand-Alone Digital Mixer, we suggest you take a few moments to familiarize yourself with its internal architecture.

### About the EZbus Digital Mixer Engine

At the core of the EZbus is a powerful DSP-based "mix engine" that takes audio from the analog and digital inputs, (optionally) routes it through EQ and dynamics processors, then sends the audio to the various analog and digital outputs, either directly, or via the Mix and Send buses.

The mix engine features eight discrete audio paths (the **Primary Audio Channels**), each of which offers a variety of traditional mixer functions, including input trim, volume, pan, bus assign, mute and solo, and selectable pre-and post-fader sends, as well as sophisticated EQ and dynamics processing. The Primary Audio Channels can then be routed to multiple destinations, including directly to analog and digital hardware outputs, the stereo Main Mix, the stereo Alternate (Alt) Mix, and Sends 1, 2, 3, and 4. The Mix/Send buses can also be routed to multiple analog and digital hardware outputs.

The layout of the EZbus front panel makes it appear as though the rows of analog inputs located at the top left of the front panel are directly associated with the rows of channel/fader strips located immediately below the inputs. But, in fact, audio from any of the inputs—analog or digital—can be assigned to any of the Primary Audio Channels (using the INPUTS function—see *The EZbus as Digital Mixer, Master Control Section, INPUTS*, in the Reference Manual, for further details).

This flexible input/output assignment architecture forms the heart of the EZbus's powerful AudioMatrix™ signal routing.

The EZbus also features three discrete Returns (two mono and one stereo) that feed directly to the stereo Main Mix bus. These Returns are ideal for bringing signals from effects devices into the EZbus without using up Primary Audio Channels. The Return paths are much the same as the Primary Audio Channels, except without EQ and dynamics processing, and they don't offer digital Trim and Phase controls. As such, they also provide a convenient way of bringing additional audio signals into the EZbus, including ADAT tracks, MIDI instruments, signals from external mixers, and the like.

In short, the EZbus is designed to provide maximum flexibility with respect to the number of audio signals it can handle simultaneously, the sophistication with which it can process audio and, thanks to the AudioMatrix™ signal routing architecture, be at home in a wide variety of audio applications, from live performance to post-production to home and project studio recording (and everything in-between).

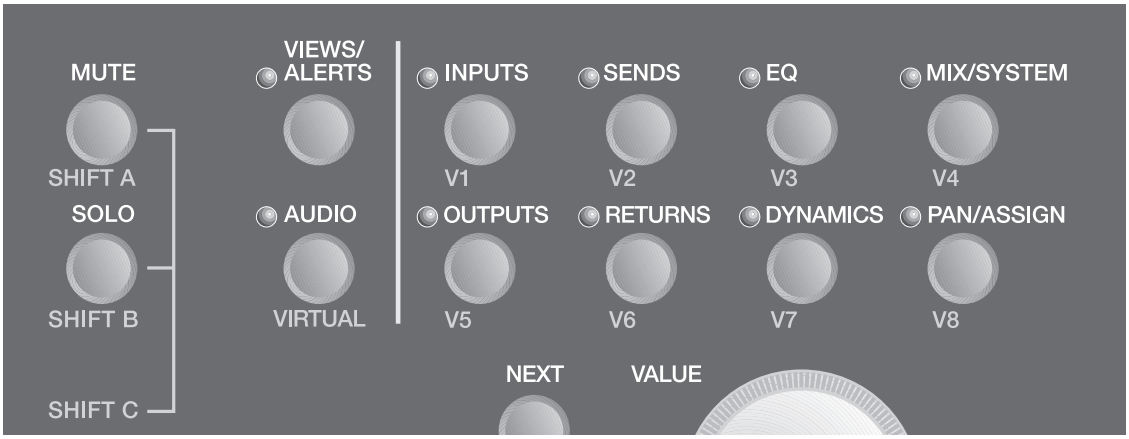



**Figure 1.** *Functions associated with Audio Control mode are printed in white lettering, whereas Virtual Control functions are indicated by light gray.*

# Control Nomenclature and Conventions

The EZbus derives its name from the fact that it's very simple ("EZ") to operate. All you need to know are a few basic operational rules that apply throughout the system.

The EZbus operates in two basic modes, **Audio Control** mode, in which you're controlling audio signals going into and out of the EZbus via its various analog and digital inputs and outputs, and **Virtual Control** mode, in which the EZbus is controlling your software applications and external MIDI devices.

Access to these modes is via the front-panel AUDIO/VIRTUAL button. When the LED next to the word AUDIO is lit, the EZbus is in Audio Control mode. When the LED is not lit, the EZbus is in Virtual Control mode.

In general, functions associated with Audio Control mode are printed in white lettering on the EZbus front panel (*e.g.*, EQ, DYNAMICS, SELECT, MUTE, SOLO). Functions associated with Virtual Control mode are printed in light gray (*e.g.*, V1, SHIFT A, SET LOCATE, LOC, as shown in **Figure 1**, above.

**NOTE:** For clarity, all dedicated EZbus function buttons are denoted in this manual by SMALL CAPS typeface.

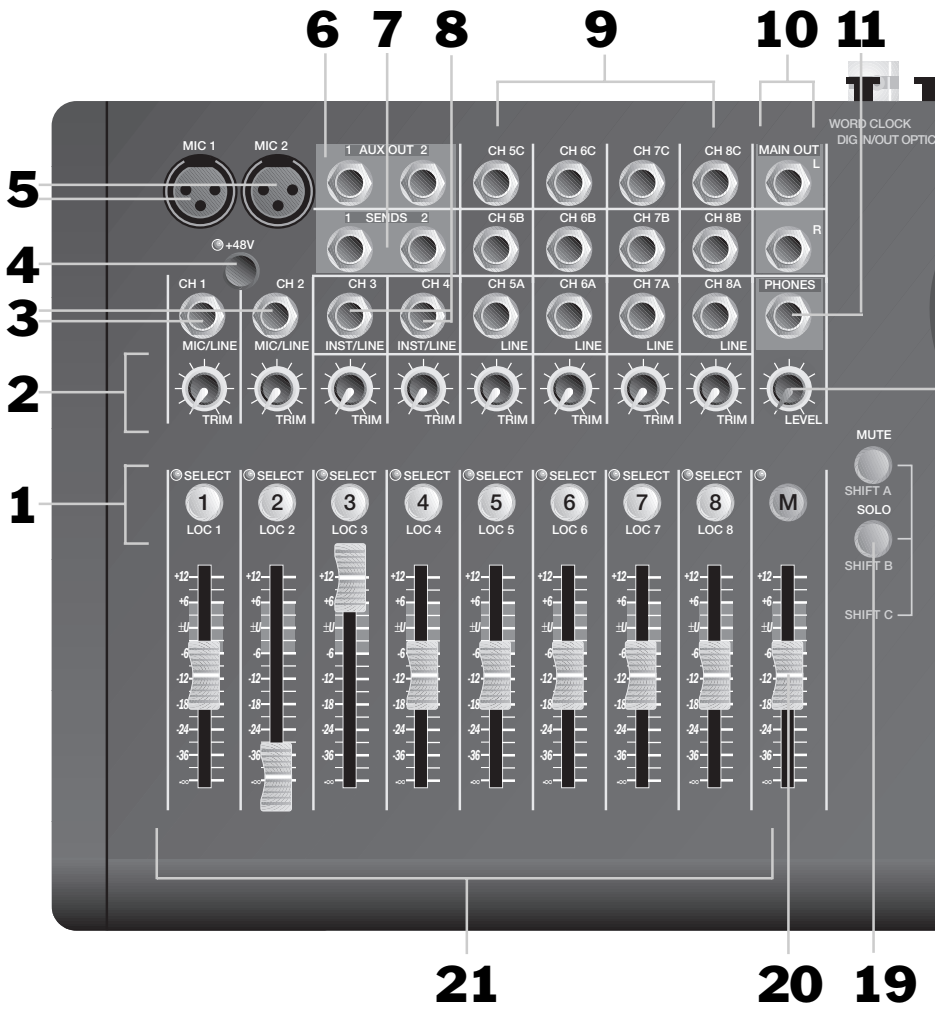
## Operating Conventions Used in Audio Control Mode

- The EZbus is in Audio Control mode when the LED next to the AUDIO/VIRTUAL button is "On" (lit).
- The Master Control function buttons and the Primary Audio Channel SELECT buttons are activated when they are pressed. The green LED located to the upper left of each button indicates its active status (LED lit = On). A button remains active until another button is pressed. The exception to this is the AUDIO/VIRTUAL button, which toggles the EZbus between Audio Control and Virtual Control modes.
- Whenever any of the Master Control function buttons are pressed, the NEXT and PREVIOUS buttons will page you through the various parameter options that are available. The pages listed under each button are accessed in rotation; that is, you can access all pages regardless of whether you begin by going forward (NEXT) or backward (PREVIOUS) through the list of available pages. When you enter a Master Control function, the page you last accessed in that function is displayed.
- Each page listed under a Master Control function contains a single parameter. The value of that parameter is entered using the VALUE wheel. The number of pages associated with each Master Control function varies according to the function selected.
- When a Primary Audio Channel SELECT button is lit, that channel is active and can be edited according to the function selected in the Master Control section. So, for example, you could select Primary Audio Channel 5, then edit its INPUT audio source, PAN position, EQ settings, and OUTPUT assignment by accessing the appropriate button(s) in the Master Control section and entering parameter values. Similarly, you could select EQ in the Master Control Section, then edit each individual channel's EQ settings in turn by pressing the appropriate channel SELECT buttons.

## Operating Conventions Used in Virtual Control Mode

- The EZbus is in Virtual Control mode when the LED next to the AUDIO/VIRTUAL button is "Off" (unlit).
- Eight of the buttons in the Master Control section have a small "V" label located at the lower left-hand corner of each button (V1 - V8). This "V" stands for VIRTUAL, and refers to the fact that the button has a different set of functions associated with it when the EZbus is in Virtual Control mode.
- Unlike the preset functions in Audio Control mode, the functions of the V buttons are fully user-programmable. From the factory, the EZbus comes loaded with a number of presets (called "V Groups") designed for controlling a wide variety of software programs, including MIDI/audio sequencers and virtual instruments. Generic setups for General MIDI devices and software-based MIDI mixers are also included. (See the README document on the EZbus Installation CD for a list of included factory-programmed V Groups.) The control functions for each V Group are documented in the V Group's Help file. An up-to-date list of V Groups can be found on the EZbus technical support pages at www.event1.com.
- To access a V Group, press the AUDIO/VIRTUAL button until its LED turns off, then press one of the V buttons. The name of the V Group and its associated function(s) will appear in the LCD. Additional pages for each V Group can be accessed via the NEXT and PREVIOUS buttons. In the case of larger V Groups, such as those designed for controlling MIDI/audio sequencers, multiple V buttons, each with multiple pages, can be part of the V Group.
- The following controllers can generate MIDI data when the EZbus is in Virtual Control mode:
    - Faders 1–8
    - Main Mix Fader
    - Value Wheel
    - Transport Controls *(also active in Audio Control mode)*
    - "M" Select Button
    - Select Buttons 1–8
    - Select Buttons with Shift A, B, and C

# EZbus Front Panel




## 1

**Primary Audio Channel SELECT Buttons**

Used to select a Primary Audio Channel in Audio Control mode. Used to generate user-programmable MIDI commands in Virtual Control mode.

## 2

**Channels 1–8 TRIM Controls**

Analog trim (level) control with 40dB gain range for controlling the level of the signal at the analog input jacks.

## 3

**Channels 1 and 2 Line Inputs**

Line level inputs with balanced $^1/_4$" TRS input jacks.

## 4

**+48V Phantom Power Switch**

When depressed, supplies +48V phantom power to microphones plugged into the Mic 1 and Mic 2 inputs.

## 5

**Channels 1 and 2 Microphone Inputs**

XLR microphone inputs with precision low noise microphone preamplifiers and +48V phantom power.

## 6

**Aux Out 1 and 2**

Balanced $^1/_4$" TRS outputs for carrying the signals from the Alternate (Alt) Mix bus, Sends 3 and 4, and the various analog and digital inputs.

## 7

**Sends 1 and 2**

Balanced $^1/_4$" TRS outputs dedicated to the signals generated by Sends 1, 2, 3, and 4.

## 8

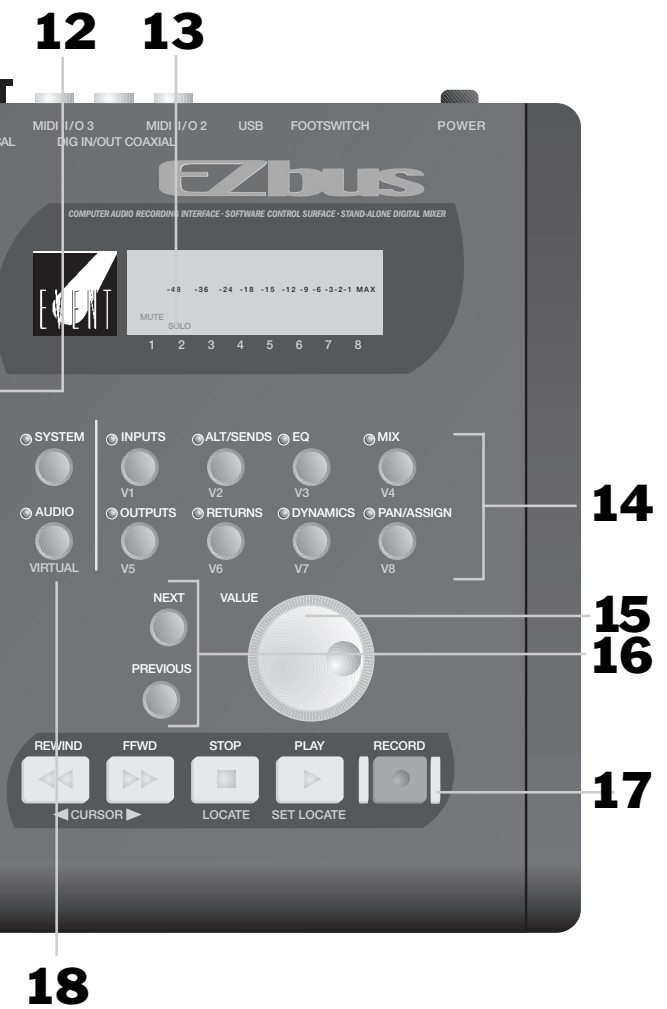
**Channels 3 and 4 Instrument/Line Inputs**

High impedance instrument inputs with balanced $^1/_4$" TRS jacks, suitable for accepting the direct signal from an electric guitar or bass or other electronic instrument. Can also be used for line level sources.

## 9

**Channels 5, 6, 7, and 8 Line Inputs A, B, and C**

Balanced $^1/_4$" TRS line inputs, designed for use with line level sources. Inputs A, B, and C are summed, making each channel ideal for use as an input for multiple keyboard instruments, effects devices, and the like.




## 10

**Main Out Left and Right**

Balanced $^1/_4$" TRS outputs dedicated to the signal from the Main Mix bus. In most applications these outputs are used to feed your control room monitors.

## 11

**Phones (Headphones)**

Unbalanced $^1/_4$" TRS stereo output jack for carrying the signals from the Main Mix bus, Alt Mix bus, Sends 1, 2, 3, and 4, or the various analog and digital inputs.

## 12

**Level Control**

Used to adjust the volume level of the signal appearing at the PHONES output jack. Please use care when adjusting the headphone level control; excessive volume levels can damage your hearing.

## 13

**LCD (Liquid Crystal Display)**

Shows a variety of system information, including the Active Mix, audio levels, parameter values, MUTE/SOLO status, and more.

## 14

**Master Control Function Buttons**

Provide access to the Audio Control mode menus (SYSTEM, AUDIO/VIRTUAL, INPUTS, OUTPUTS, SENDS, RETURNS, EQ, DYNAMICS, MIX, PAN/ASSIGN) and Virtual Control mode menus (v1, v2, v3, v4, v5, v6, v7, v8).

## 15

**Value Wheel**

Used to adjust parameter values in Audio Control mode and to generate MIDI commands in Virtual Control mode.

## 16

**NEXT and PREVIOUS**

In Audio Control mode, used to navigate among menu options in the Master Control functions. In Virtual Control mode, used to access the pages associated with each V button.

## 17

**Transport Controls**

Used to control sequencer playback and set/locate functions. REWIND and FFWD buttons also control LCD cursor movement.

## 18

**AUDIO/VIRTUAL Button**

Used to toggle between Audio Control mode and Virtual Control mode.

## 19

**MUTE and SOLO/SHIFT A, B, and C Buttons**

Used to mute and solo the Primary Audio channels in Audio control mode. Used as function shift keys in Virtual Control mode.

## 20

**Main Mix Audio Fader**

Used to control the level of the stereo Main Mix bus signal in Audio Control mode, and to generate various types of MIDI data in Virtual Control mode.

## 21

**Primary Audio Channel/ Virtual Control Faders (1–8)**

Used to control the level of Primary Audio channels 1–8 in Audio Control Mode, and to generate various types of MIDI data in Virtual Control Mode.

# EZbus Rear Panel

**USB Interface**
Accepts a standard USB cable to connect directly to the USB port on a computer. Provides two channels of simultaneous audio input and output plus 16 channels of MIDI communication.

**Coaxial S/PDIF In**
Accepts a stereo S/PDIF signal with any bit-resolution up to 24-bits and at 44.1kHz, 48kHz, 88.2kHz, and 96kHz sample rates. For reliable operation, the connection to this jack should be made using a 75ohm coaxial video cable.

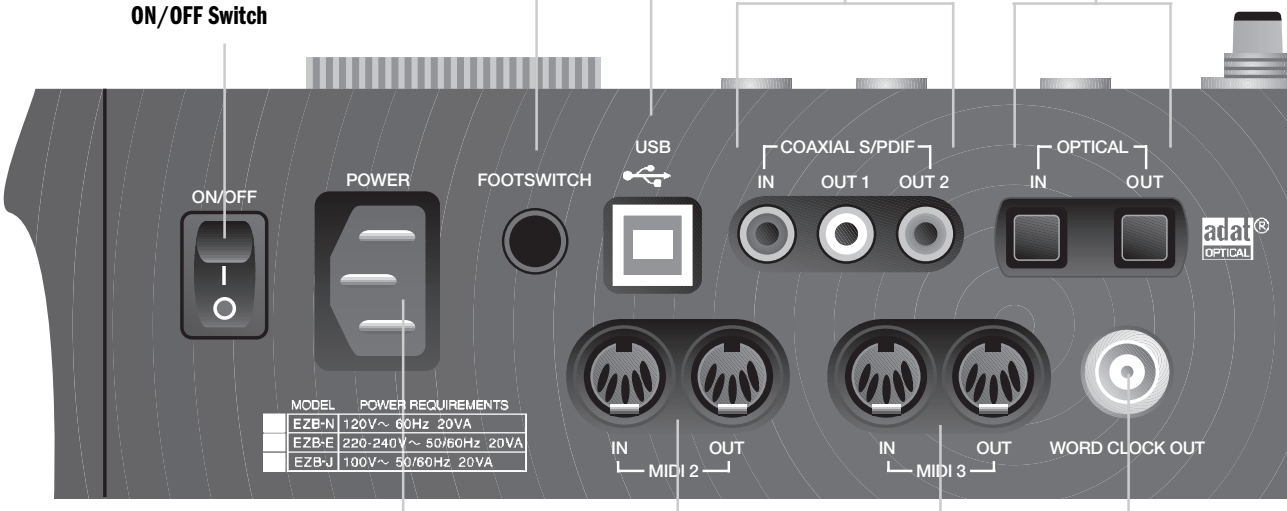
**Digital Optical Input**
This dual-purpose jack can accept up to eight channels of digital audio from an ADAT or other ADAT Optical-equipped device, or a stereo S/PDIF signal.

**Footswitch Jack**
For use with 1/4" TS (Tip/Sleeve) momentary-action footswitch to perform a variety of functions, including Mix Advance, AUDIO/VIRTUAL Select, and Sequencer Start/Stop.

**Out 1 and Out 2**
Each output transmits a stereo S/PDIF signal with any bit-resolution up to 24-bits and at 44.1kHz, 48kHz, 88.2kHz, and 96kHz sample rates.

**Digital Optical Output**
This jack can transmit up to eight channels of digital audio to an ADAT or ADAT Optical-equipped device. The jack can carry the direct signals from the Primary Audio Channels, the line inputs, or the Main and Alt Mixes and Sends 1–4.

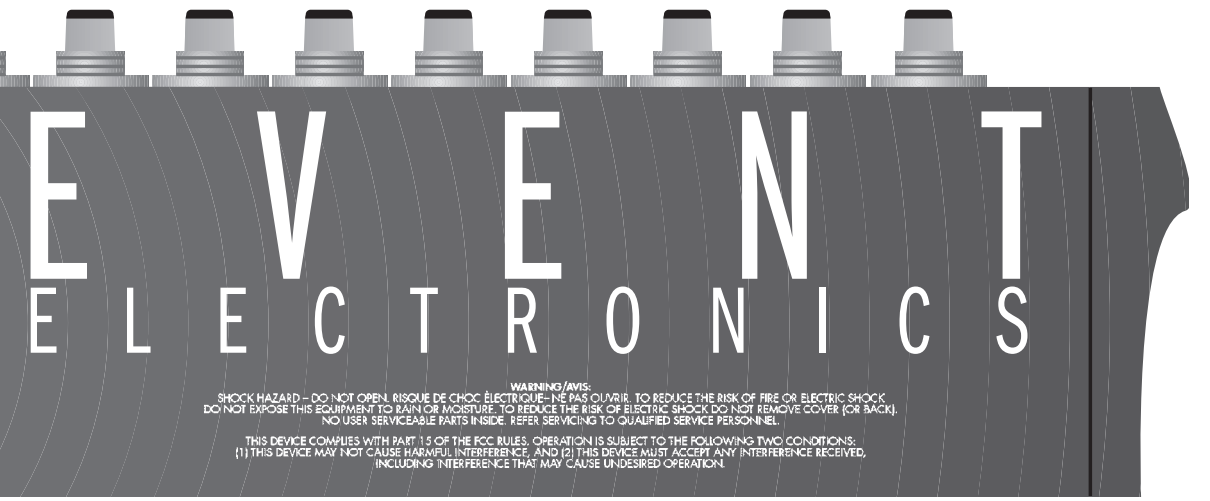
**AC Power ON/OFF Switch**




**AC Power Connector Jack**
This standard IEC jack accepts a grounded three prong AC connector. Never purposely defeat the grounding properties of the unit by modifying the power cable or using a "ground lift" device. Operate the product only at the voltage specified on the individual unit (100V, 110V, or 240V).

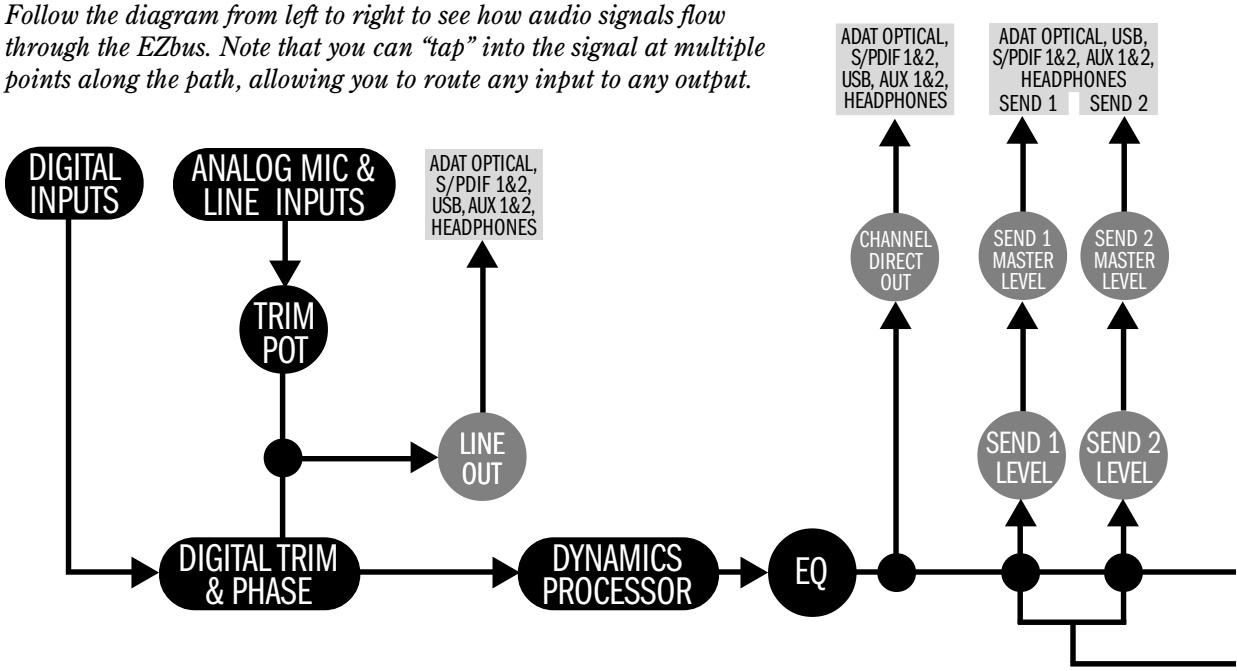
**MIDI Port 2/MIDI Port 3**
Two independent MIDI ports featuring standard five-pin MIDI input and output jacks. Supports all MIDI data types.

**Word Clock Output**
Standard BNC-type connector. Output sample rate is determined by the EZbus internal sample rate being used (44.1kHz, 48kHz, 88.2kHz, or 96kHz).


E V E N T
E L E C T R O N I C S
WARNING/AVIS:
SHOCK HAZARD – DO NOT OPEN. RISQUE DE CHOC ÉLECTRIQUE– NE PAS OUVRIR. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

# EZbus Signal Flow

*Follow the diagram from left to right to see how audio signals flow through the EZbus. Note that you can "tap" into the signal at multiple points along the path, allowing you to route any input to any output.*



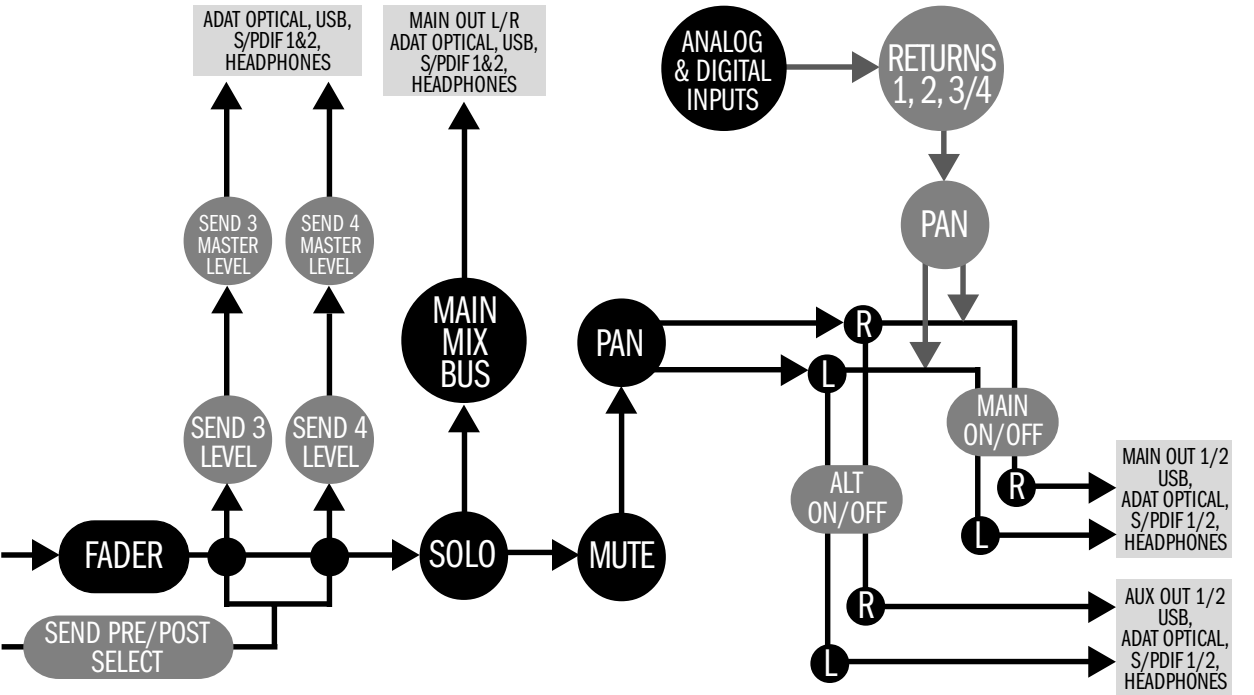

The EZbus input/output design provides for a great deal of routing flexibility, but the basic signal flow is actually very simple, and follows traditional audio mixer conventions.

As shown in the diagram, the signal path begins with any of the 21 audio sources (the analog and digital inputs) being brought into any of the eight Primary Audio Channels. The signal is digitized (in the case of an analog input), then sent first to the dynamics and then the EQ portions of the circuit. Each of those circuits can be bypassed if desired.

Immediately past the EQ lies the channel's direct output, which can appear at the ADAT Optical jack, the USB port, S/PDIF transmitters 1 and 2, Aux Out 1 and 2, and the headphone jack.

The signal then continues to the fader control, where the volume level can be adjusted by the user. Notice that the diagram shows channel Sends 1 and 2 patched into the signal before the fader (pre-fader mode) and Sends 3 and 4 patched in after the fader (post-fader mode).

Each Send is individually adjustable pre- or post-fader; the illustration is




just one example of how the sends can be programmed. (For more on using the Sends see *The Master Control Section, SENDS*, in the EZbus Reference Manual PDF.)

Next come the Mute and Solo functions, followed by the channel's Pan control. From here the signal is routed to the stereo Main Mix or Alternate Mix buses (or both).

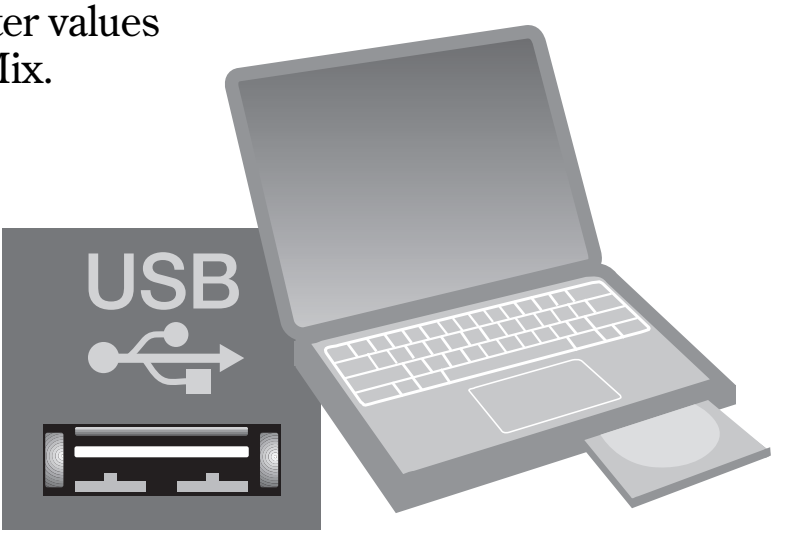
As you can see in the diagram, the Pan control functions as a bus assign control, much the same as on a traditional analog mixer. Once the channel signal is assigned to either or both of the stereo buses, the pan control determines to which side(s) of the bus the signal is fed. In this way you can set up two independent stereo mixes, four discrete signal paths, or a combination of the two.

The EZbus Returns patch directly into the Main Mix bus, offering an easy way to bring additional signals into the EZbus without using up Primary Audio Channels.

# EZbus Operational Tutorials

# Tutorial 1: Using the EZbus as a Computer Audio Recording Interface

In this Tutorial we'll start by making basic computer and audio connections, then take you through a series of EZbus functions: making channel and bus assignments, setting levels, monitoring Returns, and finally saving the audio signal routing and system parameter values as a complete Mix.



# What this Tutorial Covers:

- Connecting the EZbus to a computer via USB
- Connecting the EZbus to your audio playback system
- Connecting an analog audio source to the EZbus
- Selecting the EZbus as the audio input/output device in your recording software
- Recalling an EZbus Mix and making it the "Active" Mix
- Assigning an audio input source to a Primary Audio Channel
- Assigning a Primary Audio Channel to the Main Mix bus
- Assigning the computer's audio playback to an EZbus Return
- Adjusting audio levels: the Main Mix fader
- Adjusting audio levels: the Primary Audio Channel fader and TRIM control
- Adjusting audio levels: Return 3/4
- Recording an audio track via USB
- Simultaneously monitoring the source audio and the playback from the computer
- Naming and saving a Mix
- Advanced Concept: Using Sends to Route Audio to the Computer

**Note to PC users:** This Tutorial presumes you have previously installed the EZbus driver and Windows system file in your computer as per the instructions on Page 12.

# What You'll Need for this Tutorial:

- The EZbus
- A USB-equipped computer
- Audio recording software (Cakewalk, Cubase VST, etc.)
- The included USB cable
- A sound source (musical instrument, microphone, etc.)
- A sound system (power amp and speakers, headphones, etc.)
- Assorted audio cables

### Step 1: Connecting the EZbus to a Computer Via USB

Unpack the USB cable that was enclosed with the EZbus. Plug one end of the cable into the USB jack located on the rear panel of the EZbus and the other end into your computer's USB port. You're done!

All of the audio communication between the EZbus and the computer will take place via USB. You'll be able to record two channels of audio into your computer while listening back to two channels of audio from your computer. Remember that the two channels you're recording can be two independent instruments, one stereo instrument, or a stereo mix of many instruments. Similarly, the audio you're monitoring from your computer can be two individual instrument tracks or a stereo mix of multiple tracks.

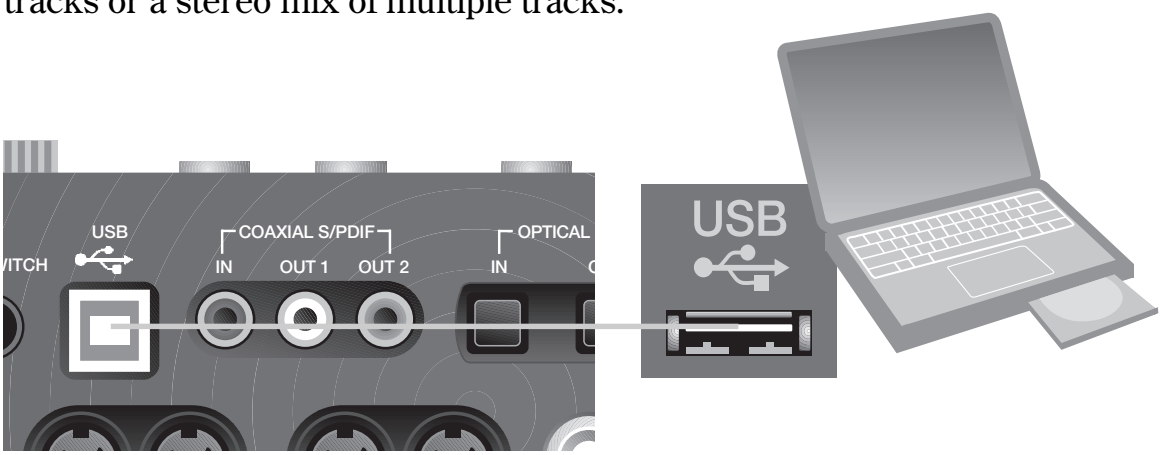



**Figure 1.** *All communication between the EZbus and the computer is via single USB cable.*

### Step 2: Connecting the EZbus to Your Audio Playback System

The two jacks labeled Main Out L and R located at the center top of the EZbus front panel always carry the signal from the EZbus Main Mix bus, and are ideally suited for use as the "control room" monitor outputs. Through them you'll be able to simultaneously listen to the tracks you're recording and the tracks that are playing back from your computer.

Plug one end of an audio cable with standard $^1/_4$" phone plug connectors into the Main Out L jack, and the other end of the cable into the Left Channel input of your monitoring system. (If you're using powered monitors, plug the cable directly into the Left monitor.) Now plug a second cable into the Main Out R jack and your monitor system's Right Input Channel.

**NOTE:** The EZbus Main Outs also accept balanced $^1/_4$" TRS (Tip/Ring/Sleeve) connectors, allowing you to set up a balanced audio system. Consult your audio system's owner's manual to see if this feature is supported.

If you're using headphones rather than a monitor system (*i.e.*, an amp and speakers), plug the headphones into the jack labeled PHONES at the center top of the EZbus front panel. The volume control for the phones is the knob labeled LEVEL immediately below the PHONES jack. As with the Main Outs, the PHONES output can also be used to monitor the Main Mix bus (as well as a variety of other sources).

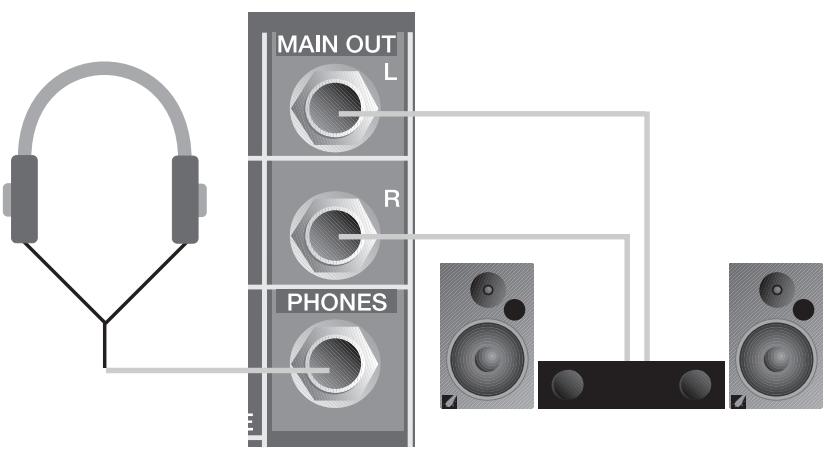
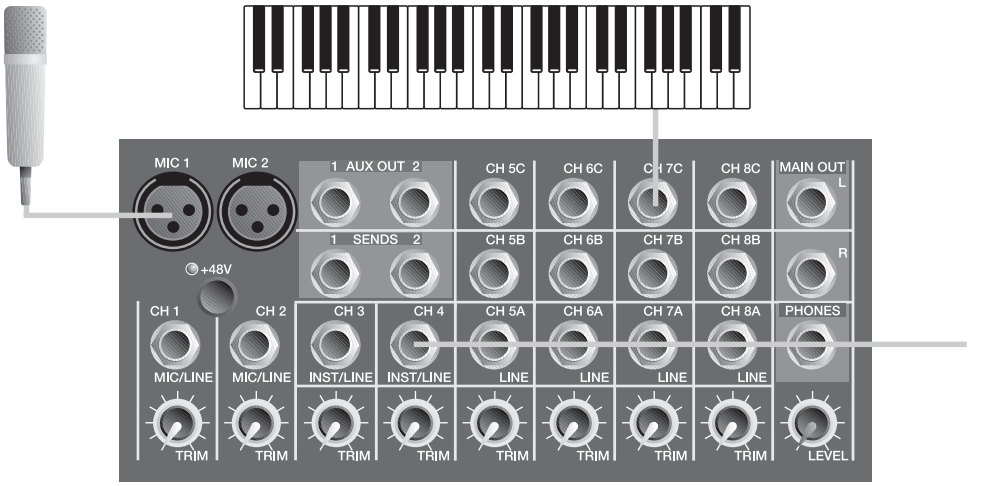



**Figure 2.** *Main Outs 1 and 2 function as control room monitor outputs for the EZbus Main Mix bus. The Main Mix bus signal can appear at the PHONES output as well.*




### Step 3: Connecting an Analog Audio Source to the EZbus

Now we'll plug in the analog audio signal we plan to record. Each of the EZbus's analog input jacks is designed for a particular type of signal: microphone, instrument, or line. If you're using a microphone, plug it into the Mic 1 or the Mic 2 jack. If the microphone is a condenser type and requires phantom power, press the +48V switch located by the Mic 1 and 2 inputs. When the LED next to the switch is lit, phantom power is being supplied to the microphone(s).

**NOTE:** If you are using a microphone, you should monitor your audio using headphones rather than with a monitor system. This will allow you to avoid feedback and/or introducing unwanted leakage into the recorded signal.

If your source is an unamplified electric guitar, bass, or other instrument that requires an instrument level input, plug it into either the Channel 3 input or the Channel 4 input.

All other line level sources—keyboards, drum machines, CD players, and the like—should be plugged into Channels 5, 6, 7, and 8. It doesn't matter whether you use the A, B, or C inputs on these channels, as they are identical. For more information on using the multiple inputs on these channels, see The *Analog Input/Output Section: INPUTS*, in the EZbus Reference Manual PDF. For information on using the digital inputs, see *Tutorial 3, Using the EZbus as a Digital Mixer*, beginning on page 68 of this Tutorial Manual.

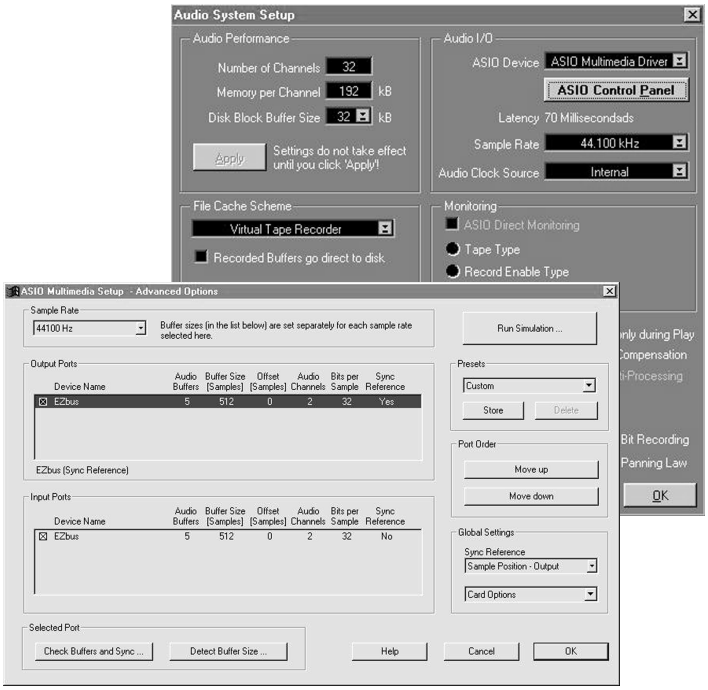


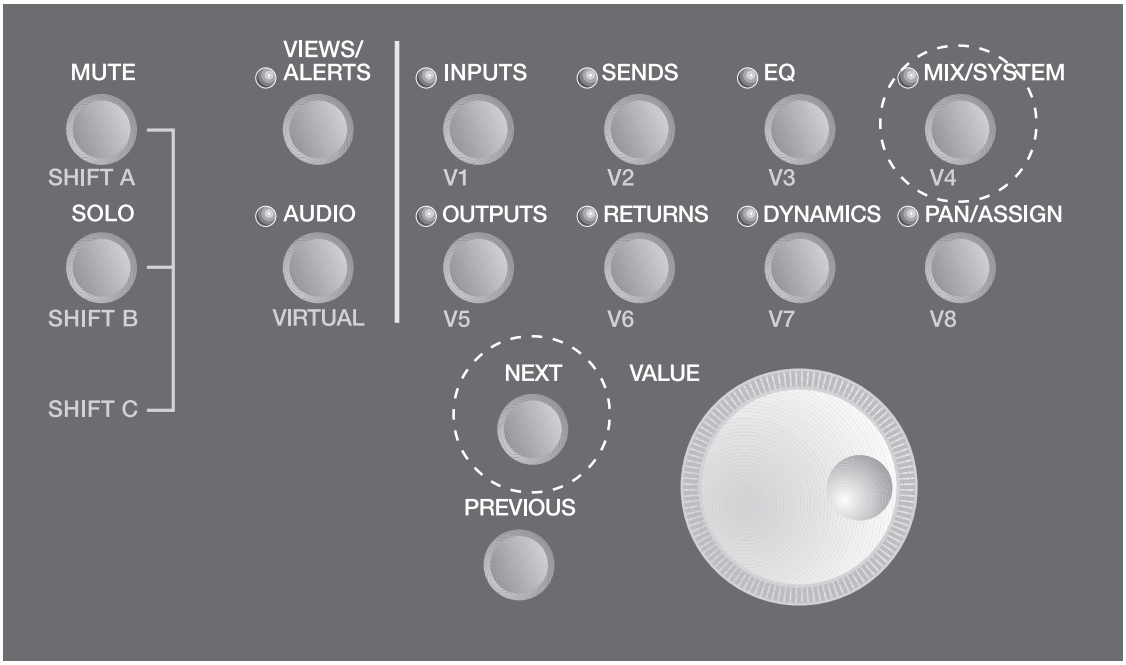

**Figure 3.** *The EZbus is selected as the Audio Input and Output devices in Cubase VST, allowing recording and playback to be performed via USB.*

### Step 4: Selecting the EZbus as the Audio Input/Output Device in Your Recording Software

Now it's time to boot your computer, turn on the EZbus, and launch your audio recording software. The EZbus is automatically recognized by your computer over USB, providing you have followed the installation steps detailed on page 12. If you have not yet installed the EZbus (and Windows) software, do so now before proceeding.

Now your audio software needs to be told that the EZbus is going to be used for audio input and output. The following example uses Steinberg's Cubase VST™. Most audio recording applications make their audio input/output device assignments in a similar manner. Please consult the owner's manual of your audio software for specific details on making the audio input/output device assignments.

In Cubase VST, go to the Options menu and select Audio –> System. Select the ASIO Multimedia driver. Hit OK.




### Step 5: Recalling an EZbus Mix and Making it the "Active" Mix

The EZbus comes from the factory pre-programmed with a number of Mix configurations. Mix 30, *Tutorial 1*, is designed to make you familiar with the EZbus Mix architecture. The Mix contains no parameter assignments; rather, you'll be making all the assignments as we work our way through this Tutorial. At the end, you'll have a Mix designed for recording and monitoring via USB, which we'll then save for use in future recording sessions.

First we need to Recall Mix 30 to make it the "Active" Mix, that is, the Mix currently loaded into memory. This is done in the MIX menu, located in the Master Control section.

Press the MIX button; the LED next to the button will light, indicating that it is the active Master Control function.
The display will show:

```
Select Mix: 00
"Welcome to EZbus"
```

Note that if you have recalled Mixes prior to following this Tutorial, the name and number of the Mix shown in the EZbus display may be different from this example.

The MIX LED will begin to flash.

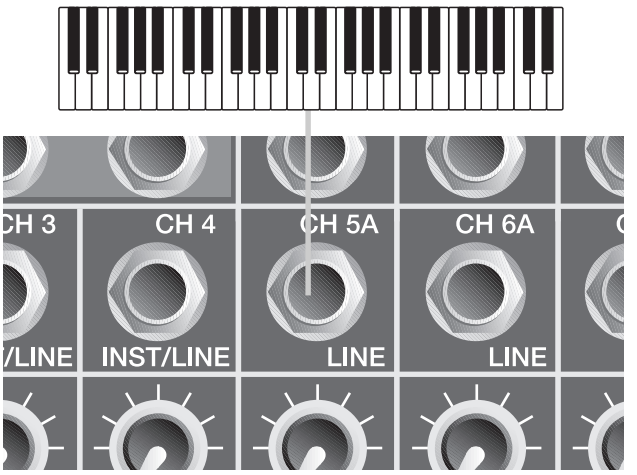
Turn the VALUE wheel until Mix 30, *Tutorial 1*, appears in the display as shown below:

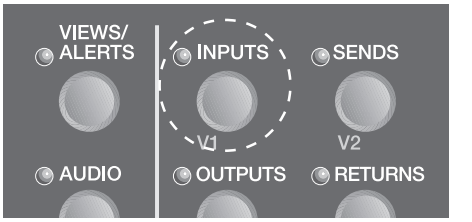
Double-click the MIX button to recall Mix 30 and make it the current Active Mix. The MIX LED will flash more quickly for a few moments while the new Mix is being loaded. The display will show:

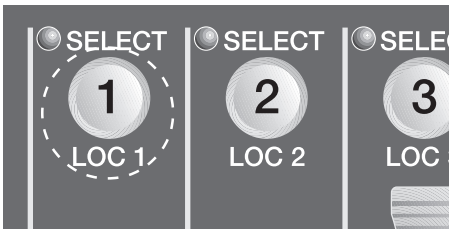
The MIX LED will remain solidly lit once the loading is complete. The display will then show:

### Step 6: Assigning an Audio Input Source to a Primary Audio Channel

Let's begin by choosing which of the eight EZbus Primary Audio Channels we're going to use to record. Remember, any input, analog or digital, can be assigned to any of the Primary Audio Channels, so just because you have something plugged into the Channel 4 input jack doesn't mean that you have to use Primary Audio Channel 4 for that signal. For this Tutorial, we'll assign our input signal to Primary Audio Channel 1. The analog input we assign to that channel will depend on your source audio (line level, instrument, or microphone).

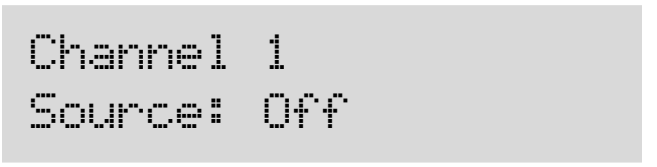


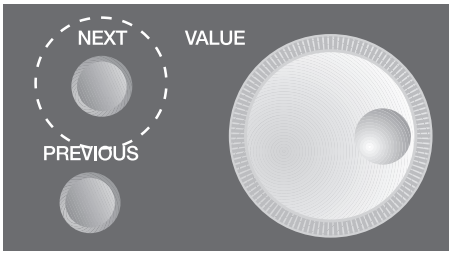



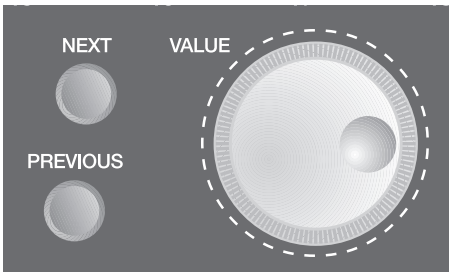




Let's presume you're using a line level source such as a keyboard or MIDI sound module plugged into the Line 5 A jack. (For this Tutorial we'll use only a mono source.) In the Master Control Section, press INPUTS, followed by the SELECT button of the Primary Audio Channel you wish to assign, in this case Channel 1. Notice that the LED next to the Channel 1 SELECT button is lit, indicating that Channel 1 has been selected.

Press NEXT repeatedly until the display shows:





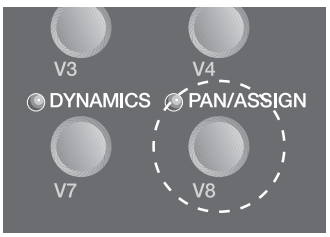

The following hardware inputs are available as sources for Primary Audio Channel 1. Turn the VALUE wheel to select Line 5 (ABC).

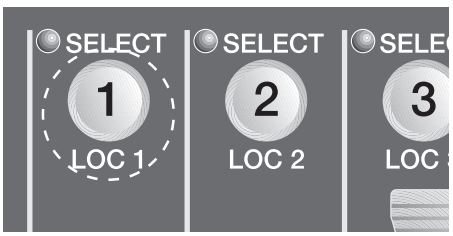
| | | |
|---|---|---|
| Off | Mic/Line 1 | Mic/Line 2 |
| Inst/Line 3 | Inst/Line 4 | Line 5(ABC) |
| Line 6(ABC) | Line 7(ABC) | Line 8(ABC) |
| Optical 1 | Optical 2 | Optical 3 |
| Optical 4 | Optical 5 | Optical 6 |
| Optical 7 | Optical 8 | S/PDIF Left |
| S/PDIF Right | USB Left | USB Right |

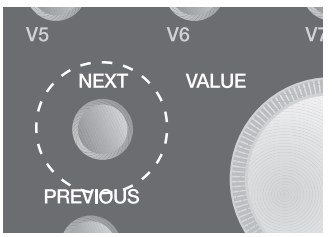
If you're using another audio source, such as the direct signal from an electric bass, select its associated input (Inst/Line 3, for example), as the audio Source for Primary Audio Channel 1.

### Step 7: Assigning a Primary Audio Channel to the Main Mix Bus

Now we need to route Primary Audio Channel 1 to the Main Mix bus so that we can monitor its signal.




In the Master Control section, Press PAN/ASSIGN, followed by the SELECT button of Primary Audio Channel 1. Then press the NEXT button repeatedly until the display shows:

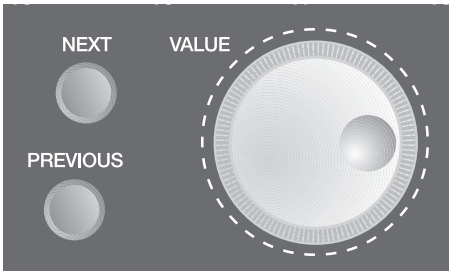
```
Channel 1
Main Mix: Off
```

Two options are available, as shown below.

| On | Off |
|---|---|

Turn the VALUE wheel to select "On."
The display will show:

```
Channel 1
Main Mix: On
```

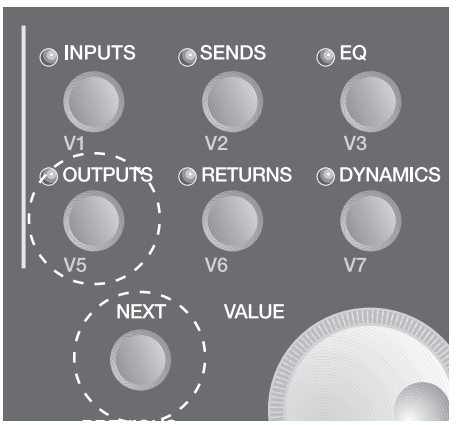



### Step 8: Routing the Audio to the Computer via USB

At this point we have the audio that's coming into the EZbus routed to a Primary Audio Channel and from there to the Main Mix bus, where we can monitor it. Now we need to get the channel's signal to the computer.

Since we're using a line input for our source signal, we'll simply assign that input directly to USB. Press OUTPUTS followed by the NEXT button repeatedly until the display shows:

```
USB Audio (to PC)
Source: Off
```



Use the VALUE wheel to select your source input, *e.g.,* Line 5 & 6, from the following available options:

| | | |
|---|---|---|
| Off | Main Mix | Alternate Mix |
| Sends 3&4 | S/PDIF L&R | USB L&R |
| Dir Out 1&2 | Dir Out 3&4 | Dir Out 5&6 |
| Dir Out 7&8 | Line 1&2 | Line 3&4 |
| Line 5&6 | Line 7&8 | Optical 1&2 |
| Optical 3&4 | Optical 5&6 | Optical 7&8 |

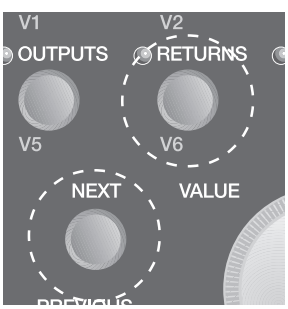
The display will show:

```
USB Audio (to PC)
Source: Line 5&6
```

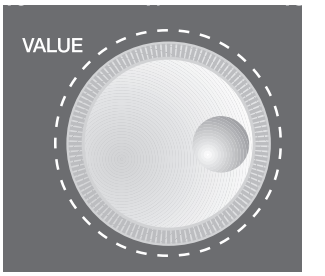
### Step 9: Assigning the Computer's Audio Playback to an EZbus Return

The final step in our audio routing setup is assigning the computer's audio playback (coming in via USB) to the Main Mix bus so that we can monitor it. We'll do that using the Returns, which are hard-wired to the Main Mix bus. We could easily bring the audio into two Primary Audio Channels, but we want to save those channels for instrument inputs, so the Returns provide a convenient alternative. Return 3/4 is a stereo return, ideally suited for this application (Returns 1 and 2 are mono), so we'll select it.

In the Master Control Section press RETURNS, followed by NEXT repeatedly until the display shows:




```
Return 3/4 (stereo)
Source: Off
```




Turn the VALUE wheel to select USB L & R as the audio Source from the following available options:

| | | |
|---|---|---|
| Off | Line 1 & 2 | Line 3 & 4 |
| Line 5 & 6 | Line 7 & 8 | Optical 1 & 2 |
| Optical 3&4 | Optical 5&6 | Optical 7&8 |
| S/PDIF L&R | USB L&R | |

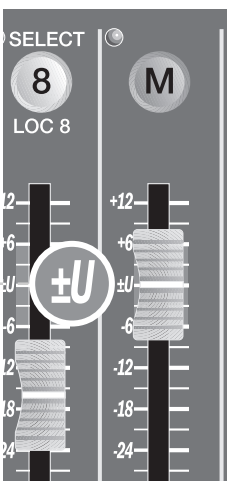
The display will show:

```
Return 3/4 (stereo)
Source: USB L&R
```

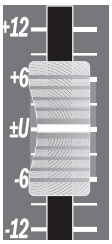
### Step 10: Adjusting Audio Levels: The Main Mix and Primary Audio Channel Faders

The last thing we need to do before recording is adjust our audio levels, starting with the Main Mix fader.

The Main Mix fader, distinguished from the Primary Audio Channel faders by its blue "M" SELECT button, controls the volume of the Main Mix bus signal. We're using the Main Mix bus strictly for monitoring, so the position of the fader isn't critical at this point (*i.e.*, the level of the signal being recorded isn't affected by this fader, since it's the Line input signal that's going to the computer.) As a rule, however, the fader should be set at its ±U (unity gain) mark. So for now, set it there; if your playback level turns out to be too soft or too loud, you can adjust it later.



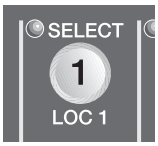
Now set the Channel 1 fader to its ±U (unity gain) position. As with the Main Mix fader, the position of the channel fader will only affect playback volume, not the level of the signal going to the computer. This allows you to easily create a monitor mix without adversely affecting your record levels.




### Step 11: Adjusting Audio Levels: The Line Input TRIM Control

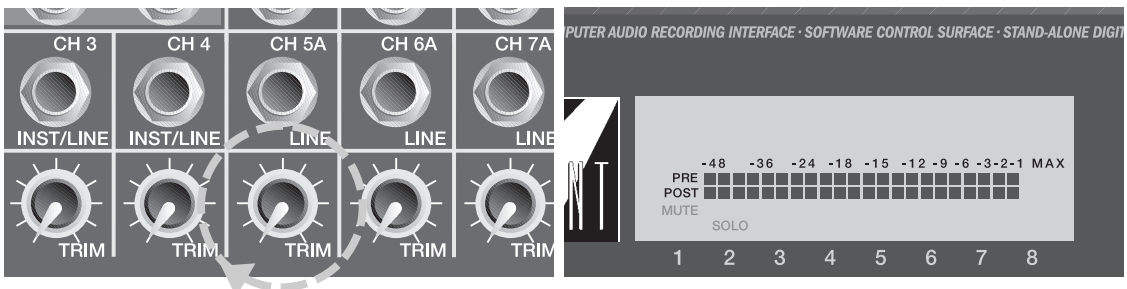
The goal here is to set this control so that noise is minimized, dynamic range is maximized, and a reasonable amount of headroom is maintained. When the control is properly set, the level of the source signal will be optimized for both the EZbus and the computer input, since we're routing the signal directly to the computer via USB.

We've assigned the Line input to Primary Audio Channel 1, so first press the Channel 1 Select button; this will place the LCD meter into pre-fader mode, allowing you to visually monitor the level at the Channel's input.




Next we"ll set the Line Input's TRIM control, which is used to adjust the gain of the analog signal that appears at the Channel input. **Important:** Even though the Line Input is assigned to Channel 1, the TRIM control that you'll be adjusting is the one directly associated with the Line Input being used. So, for example, if your signal is plugged into Line Input 5C, you'll be adjusting the Channel 5 TRIM control.

Begin by playing your audio source—playing the keyboard, singing into the microphone, and so on. Then, starting with the control rotated fully counter-clockwise, gradually increase the gain by turning the knob clockwise. As you turn the knob, keep an eye on the level meter in the EZbus LCD. The TRIM is at the correct setting when the loudest part of your signal registers just below the MAX indicator on the LCD. At this



point you'll have a nice, hot signal going to the channel (without overloading it), thereby maximizing signal-to-noise and dynamic range. If you think you'll exceed this level when actually doing your take (we all get excited when the record light comes on!), set the level so that the loudest peaks read at around –2dB on the LCD. This will give you a bit of headroom for transients and louder passages.

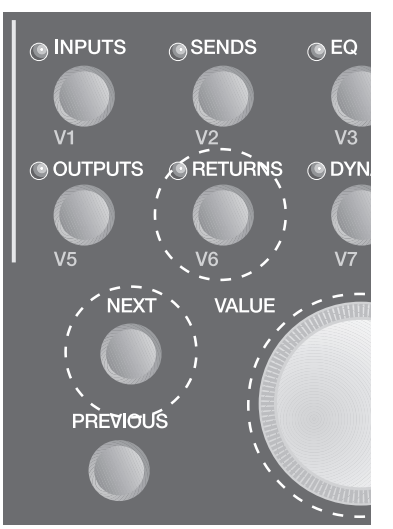
### Step 12: Recording an Audio Track via USB

Now that you've completed the audio setup, all that's left is to start making music! Simply initiate recording in your software and start playing (or singing)—the signal from your EZbus will be recorded on the track. If you need to adjust the record level, you can do so using the Line input's TRIM control, as this will only affect the signal going to the computer, not your monitoring level.

### Step 13: Monitoring Your Recorded Tracks: Return 3/4

Return 3/4 (stereo) provides an easy and convenient way to monitor playback of the audio tracks recorded on your computer.

Once you've recorded a track, set that track's on-screen fader to its normal operating position (as recommended in your software's owner's manual), usually around 3/4 of the way up. Initiate playback of the track. Then, in the Master Control Section, press RETURNS, followed by the NEXT button repeatedly until the display shows:




```
Return 3/4 (stereo)
Level: Off
```

Gradually turn the VALUE wheel clockwise to increase the Return 3/4 level. There is no "correct" setting. Simply adjust the level to provide reasonable volume for playback and overdubbing. Note that a setting of ±00dB provides unity gain.

### Step 14: Simultaneously Monitoring the Source Audio Signal and the Playback from the Computer

When monitoring your source signal, its volume level is controlled by the Primary Audio Channel fader. You can freely adjust this fader without affecting the level of the signal that's being recorded by the computer. Similarly, the Return 3/4 Level can be adjusted to taste, as described in Step 13. Use the two controls to balance the levels of the source signal and the audio from the computer.

**Monitoring Variation:** For more immediate access to the volume of the audio signals returning from the computer, try assigning USB Left and USB Right as the audio sources of two Primary Audio Channels, and those Primary Audio Channels to the Main Mix bus. That way, you can control the monitor levels using faders, rather than the "soft" level control used by Return 3/4. Instructions for making these assignments can be found in Steps 6 and 7.

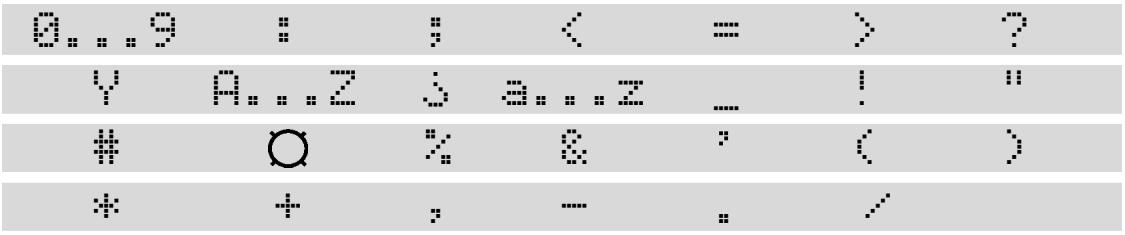
### Step 15: Naming and Saving a Mix

Congratulations . . . you've just created your first EZbus Mix! Needless to say, you don't want to have to create a brand new Mix every time you begin a session, so for our final step we'll name and save the Mix created in this Tutorial. The EZbus provides 32 locations for storing Mixes, and Mixes can be recalled, edited, and resaved. You can create recording Mixes, live performance Mixes, song-specific Mixes, mixdown Mixes, whatever!

In the Master Control section, press MIX, followed by NEXT. The display will show:

The MIX LED will begin to flash.

Press the FFWD button in the transport controls; the cursor in the LCD will move to under the "T" in Tutorial. Use the VALUE wheel to select one of the following alphanumeric characters:



Use the FFWD button to advance the cursor to the next character space. Use the REWIND button to move the cursor to the previous character space. Names can be up to 16 characters long.

When the name is complete, double-click the MIX button to store the name and all the Mix settings to memory location 30.
Or, you can use the VALUE wheel to select a new location (00–31) prior to double-clicking MIX.

When you double-click the MIX button, its LED will flash more quickly for a few moments while the new name and Mix are being stored. The display will show:

```
   Storing Mix 30!
```

The MIX LED will remain solidly lit once the Mix has been stored. The display will then show:

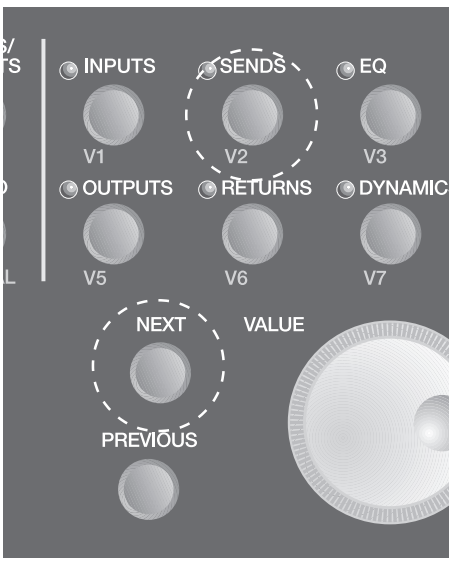
```
   Select Mix: 30
"My New Mix Name "
```

# Advanced Concept: Using Sends to Route Audio to the Computer

When recording multiple instruments, or when you wish to add EQ or dynamics to the signal(s) being recorded, you can route the signals to the computer using the Sends, rather than going directly from the Line Inputs. As with taking the signal directly from the Line Inputs, using Sends allows you to control the level of the signal going to the computer independently of your monitoring level. And since the Sends can be configured to operate pre-fader, you'll be able to adjust your monitor mix without disturbing the record level.

Four Sends are available, each of which can accept signals from multiple Channels. For this exercise, we'll use Send 1.

First we'll check the Master Output Level of Send 1. We'll set the level feeding Send 1 from Primary Audio Channel 1 in a later step after we've got our recording software up and running.




Press SENDS in the Master Control Section, followed by NEXT repeatedly until the display shows:

```
Send 1
Master Level: ±00dB
```

A ±00dB Level represents full digital output from the Send 1 Master Output, the recommended (default) setting for the Output Level. When recording multiple tracks, it may be necessary to reduce the level to avoid overloading the Master Output.

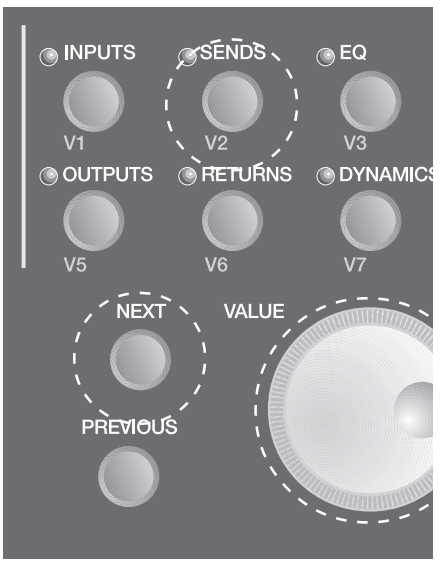
Now it's time to set the Pre/Post fader mode of Send 1. In the Master Control section, press NEXT repeatedly until the display shows:

```
Send 1
Mode: Pre Fader
```

Use the VALUE wheel to select Pre Fader.

Now it's time to set the Send level coming from Primary Audio Channel 1. This adjustment is somewhat critical, as it directly affects the level of the signal going to the computer.

Begin by record-enabling a track in your software so that you can view its input level meter. Next, in the Master Control section press SENDS, followed by the NEXT button repeatedly until the display shows:

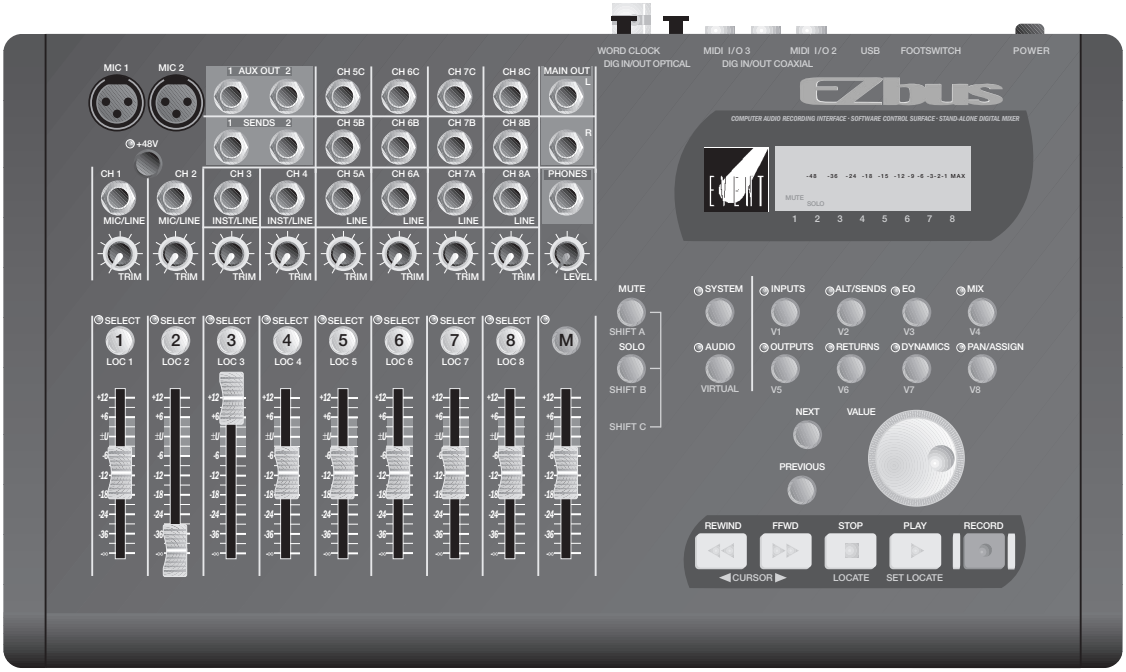



```
Channel 1  Send 1
Level: Off
```

Now, while playing your audio source, turn the VALUE wheel clockwise to slowly bring up the Channel 1 to Send 1 level. As you do so, watch the level meters in your audio recording software. Continue to increase the level until your recorder's meters are reading at the recommended level (generally at or near 0dB full scale). On the EZbus, a Level setting of ±0dB provides unity gain, the recommended setting for a single source. When recording multiple sources, the Level setting must be lower to avoid overloading the Send 1 Master Output.

# Tutorial 2: Using the EZbus as a Software Control Surface

In this Tutorial we'll start by making basic computer connections, then take you through a series of EZbus Virtual Control functions, including loading and selecting Virtual Control configurations, operating the EZbus controls, and using fader nulling.



# What this Tutorial Covers:

- About V Groups (control surface configurations)
- Connecting the EZbus to a computer via USB
- Entering Virtual Control mode (a.k.a. Software Control Surface mode)
- Loading V Groups from your computer via USB
- Selecting a V Group
- Accessing additional V Groups
- Using the EZbus Virtual controls
- Using the Virtual Control SHIFT buttons
- About fader modes: nulling and relative

**Note to PC users:** This Tutorial presumes you have previously installed the EZbus driver and Windows system file in your computer as per the instructions on page 12.

# What You'll Need for this Tutorial:

- The EZbus
- A USB-equipped computer
- Audio recording software (Cakewalk, Cubase VST, etc.)
- The included USB cable
- The EZbus Installation CD

### Introduction: About V Groups

From the factory, the EZbus comes loaded with a variety of control surface configurations, called V Groups, designed for use with a number of popular software recording/editing applications and virtual instruments. Altogether there are 32 "pages" of V Groups, with each page containing unique MIDI controller assignments for the EZbus faders, switches, and VALUE wheel. All 32 can be dedicated to controlling a single application, each of the 32 to a different application, or anything (and everything) in-between.

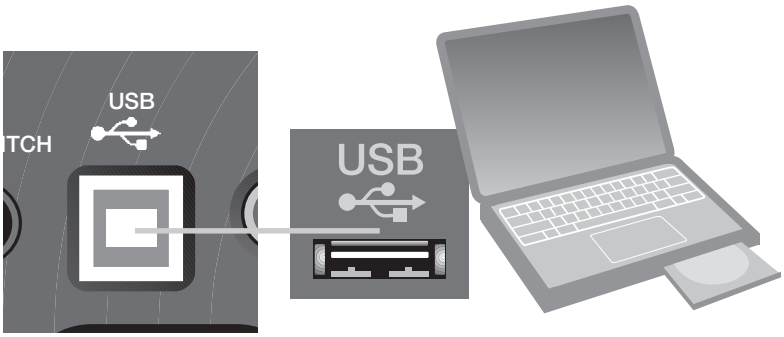



**Figure 1.** *All communication between the EZbus and the computer is via a single USB cable.*

### Step 1: Connecting the EZbus to a Computer Via USB

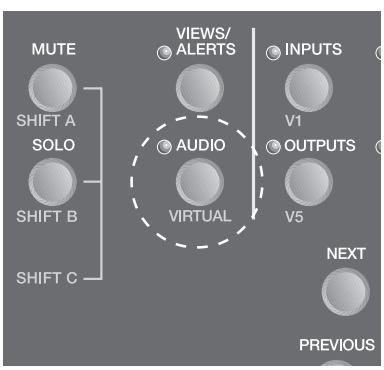
The EZbus control surface operates by sending MIDI data to the receiving application or device when an EZbus control is operated. The control information can be sent via the unit's rear-panel MIDI ports or via USB. For this Tutorial, we'll send it via USB, so the first thing we need to do is get the EZbus hooked up to the computer. Important: Windows ME users must install ME update, as detailed in the Installation Guide on page 12, prior to connecting the EZbus to your computer via USB.f

Unpack the USB cable that was enclosed with the EZbus. Plug one end of the cable into the USB jack located on the rear panel of the EZbus and the other end into your computer's USB port.

All of the MIDI communication between the EZbus and the computer will take place via USB, which is considered MIDI port 1 (that's why the rear-panel ports are labeled MIDI 2 and MIDI 3).

### Step 2: Entering Virtual (Software Control) Mode

The EZbus is designed to make it extremely easy to switch between Audio Control and Virtual Control modes. A single push of the AUDIO/VIRTUAL button, and you've moved from controlling the on-board EZbus audio functions to controlling a host of parameters in your audio recording software, virtual instruments,



and external MIDI devices. Push the button again, and you're back controlling the on-board audio. You can tell that the EZbus is in Audio Control mode when the LED next to the AUDIO/VIRTUAL button, located in the Master Control section, is lit.

To enter Virtual Control mode, push the AUDIO/VIRTUAL button once; the LED next to the button will go out, indicating that the EZbus is now in VIRTUAL mode. The LCD will show:

```
Faders: VST Volume
Wheel: Ch 01 Pan
```

The screen above indicates that the currently selected V Group (see **About V Groups**, page 59) is set up to control the Cubase VST audio mixer, and provides control over fader and pan functions.

### Step 3: Loading V Groups from Your Computer Via USB

To get the most from your EZbus, you'll want to load a set of V Groups optimized for your particular software applications. A collection of V Groups is called a "Profile." To load new V Groups into the EZbus, you simply load a new Profile. Some preset Profiles can be loaded by clicking on the EZ icon in the Windows menu bar, and selecting a Profile from the Control Surface Profiles pop-up list. We want to use a custom Profile containing a set of V Groups designed specifically for this Tutorial; we'll do that using the EZbus Control Surface Editor program. Don't worry about overwriting the on-board set. You can reload it (or any of the other Profiles on the EZbus Installation CD or in the Tray Menu pop-up list) at the end of this Tutorial.

Click on the EZbus tray menu icon, and select Control Surface Editor; this will cause the editor application to launch. The following

screen will appear:

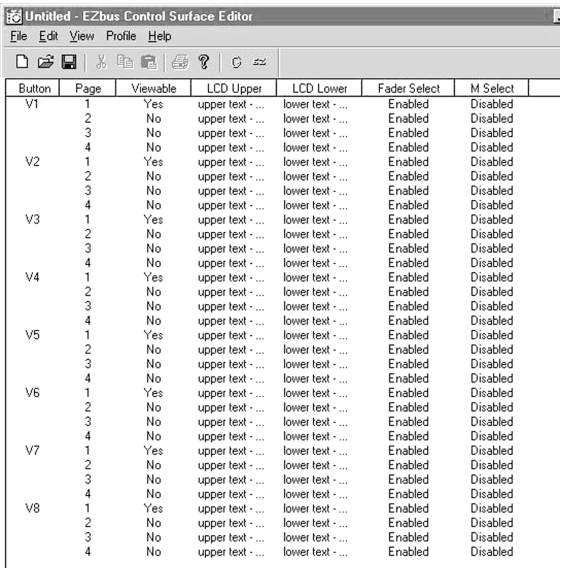



**Figure 2.** *The EZbus Control Surface Editor application lets you create custom Profiles for your software applications and MIDI devices. You can also use it to create libraries of Profiles.*

Place the EZbus installation CD into your computer's CD-ROM drive, and in the Control Surface Editor click on **File** and select **Open.** Navigate to the EZbus Installation CD and select the Profile named *Tutorial 2.* (Note that Profiles have .ebs extensions.). When that Profile opens, it will appear like this:

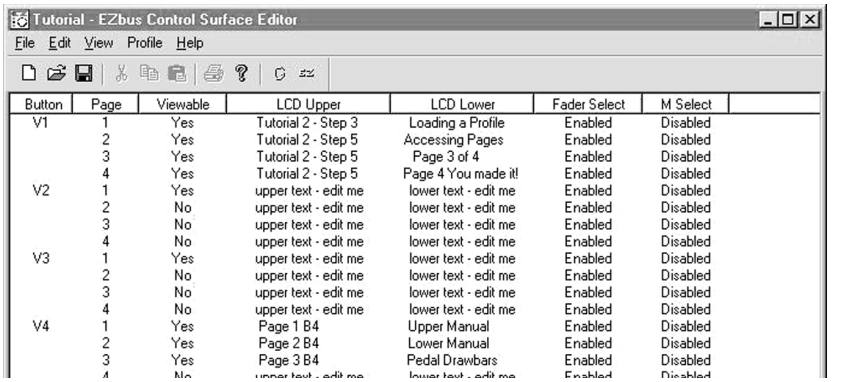

Tutorial - EZbus Control Surface Editor
File Edit View Profile Help
Button Page Viewable LCD Upper LCD Lower Fader Select M Select
V1 1 Yes Tutorial 2 - Step 3 Loading a Profile Enabled Disabled
2 Yes Tutorial 2 - Step 5 Accessing Pages Enabled Disabled
3 Yes Tutorial 2 - Step 5 Page 3 of 4 Enabled Disabled
4 Yes Tutorial 2 - Step 5 Page 4 You made it! Enabled Disabled
V2 1 Yes upper text - edit me lower text - edit me Enabled Disabled
2 No upper text - edit me lower text - edit me Enabled Disabled
3 No upper text - edit me lower text - edit me Enabled Disabled
4 No upper text - edit me lower text - edit me Enabled Disabled
V3 1 Yes upper text - edit me lower text - edit me Enabled Disabled
2 No upper text - edit me lower text - edit me Enabled Disabled
3 No upper text - edit me lower text - edit me Enabled Disabled
4 No upper text - edit me lower text - edit me Enabled Disabled
V4 1 Yes Page 1 B4 Upper Manual Enabled Disabled
2 Yes Page 2 B4 Lower Manual Enabled Disabled
3 Yes Page 3 B4 Pedal Drawbars Enabled Disabled

**Figure 3.** *The* Tutorial 2 *Profile contains V Groups designed specifically for this Tutorial. You can use the Control Surface Editor application to create your own V Groups or modify those supplied with the EZbus.*

Located at the top of the screen is a row of menu buttons, with the rightmost button labeled EZ. Click that button; the *Tutorial 2* Virtual Control Profile will download into the EZbus over USB in just a few moments. When the download is complete, the EZbus LCD will show:

```
Tutorial 2 - Step 3
Loading a Profile
```

### Step 4: Selecting a V Group

You'll notice that now that you're in Virtual Control mode, the LED next to the INPUTS button is lit. Notice, too, that just below the INPUTS button is a small V1, written in light gray. The V signifies "virtual," meaning that when you're in Virtual Control mode, the button is associated with its control surface functions, not with its audio functions. The INPUTS LED is lit because when you enter Virtual Control mode for the first time after powering up the EZbus, V1 is automatically selected.

Each of the eight Master Control buttons, labeled V1 – V8, is used to access a new V Group. To call up a different V Group, simply press one of the other V buttons. Whenever you return to Virtual Control mode after working in Audio Control mode, the EZbus will display the last V Group accessed.

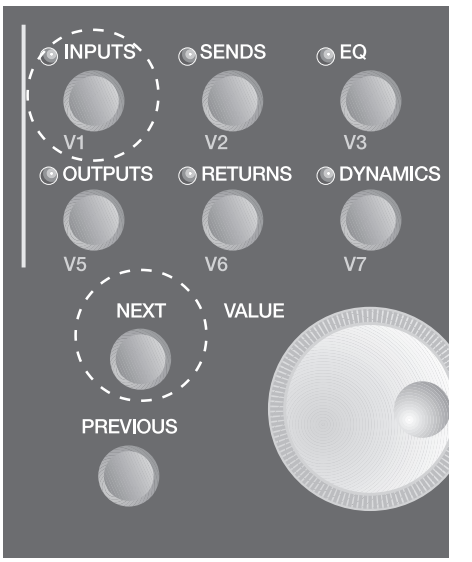
Each factory programmed V Group has a descriptive name that appears in the LCD when the V Group is accessed, making it easy to keep track of each V Group's control functions. Names are created using the EZbus Control Surface Editor software.

### Step 5: Accessing Additional V Groups

Each of the eight V buttons has four layers, or "pages," associated with it, for a total of 32 possible unique V Groups. There can, of course, be direct associations between the pages and the V button, that is, all four pages can be dedicated to a single software application. But you can just as easily use each page as a unique V Group and control 32 different applications. To access pages:

In Virtual Control mode, press V1 (INPUTS), followed by the NEXT button. This will bring you to V1, page 2. The display will show:

```
Tutorial 2 - Step 5
Accessing Pages
```




To get to the next page, press the NEXT button again. The display will show:

```
Tutorial 2 - Step 5
Page 3 of 4
```

Finally, press NEXT again to access the fourth page. The display will show:

```
Tutorial 2 - Step 5
Page 4 You made it!
```

You can also use the PREVIOUS button to access pages. So, for example, you can go immediately from page 1 to page 4 by pressing PREVIOUS once.

### Step 6: Using the EZbus Virtual Controls

Now that we've spent a little time navigating through the Virtual menus, let's do some actual software control.

On the EZbus Installation CD you'll find a folder labeled Native Instruments Demos. Inside the folder is a demo version of the company's B4 virtual instrument. Launch the demo, then set up the program's communication with the EZbus by clicking on the **System** menu and selecting **MIDI** Settings. In the box labeled **Available Inputs**, double-click on **EZbus** and hit **OK**.

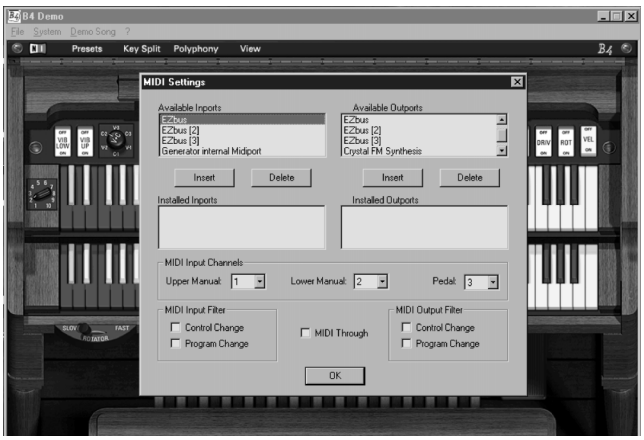



**Figure 4.** *The EZbus appears as three MIDI devices in the B4's MIDI settings screen. The unnumbered EZbus is the USB MIDI; EZbus 2 and 3 are the EZbus hardware MIDI ports.*

Now we'll select the EZbus V Group designed for use with the B4. The V Group is located on V4, pages 1, 2, and 3.

In Virtual Control mode, press V4. The display will show:

```
Page 1 B4
Upper Manual
```

Use the EZbus Channel faders 1 – 8 and the Main Mix fader to move the B4's upper manual drawbars. (Note that the B4's drawbar action is designed to emulate that of a real Hammond organ, so the drawbars pull out in steps, rather than smoothly. On mixer faders and the like, the action is continuous.)

Now let's go to page 2. Press the NEXT button. The display will show:

```
Page 2 B4
Lower Manual
```

Now you can use the EZbus Channel faders 1–8 and the Main Mix fader to move the B4's lower manual drawbars. The SELECT buttons are active on this page, designed to be used in conjunction with the VALUE wheel. To see an example of how this works, click on the view menu at the top of the B4 screen, and select Control. Now press SELECT button 4 to select the rotary speaker's treble horn acceleration, then use the VALUE wheel to adjust the acceleration speed up and down.

Now press the NEXT button on the EZbus. The display will show:

```
Page 3 B4
Pedal Drawbars
```

In this V Group, the EZbus Channel faders 1–6 are used to control the B4's pedal drawbars.

All of the B4's parameters are mapped to the EZbus controllers. Many are accessed by pressing a Primary Audio Channel SELECT button to select the parameter, followed by turning the VALUE wheel to adjust the parameter value. Before moving to the next step, take a little time to familiarize yourself with the assignments, and the various control techniques used in the three B4 Profiles.

### Step 7: Using the Virtual Control SHIFT Buttons

The EZbus SELECT switches can be used in combination with SHIFT A, B, and C to provide additional functionality, that is, to allow you to control more parameters with a single V Group.

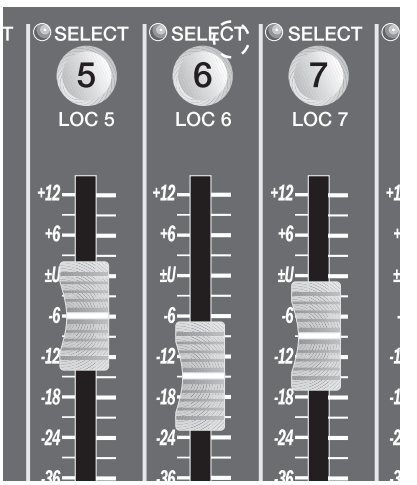
To use a SELECT switch in SHIFT mode, press and hold the SHIFT key(s) while operating the switch. For SHIFT A, press and hold the MUTE/SHIFT

A button. For SHIFT B, press and hold the SOLO/SHIFT B button. For SHIFT C, press and hold the MUTE/SHIFT A and SOLO/SHIFT B buttons simultaneously.

In the B4 V Groups, the SELECT buttons, when used in combination with a SHIFT button, toggle various functions on and off. To see an example of this, press and hold SHIFT A (MUTE), then press SELECT 3, which is programmed to turn the B4 Percussion off and on. Notice that each time you press SELECT 3, the Percussion toggles modes, from off to on and back again. (Note: You must contine to hold the SHIFT A button in order to toggle the function off and on.)

### Step 8: About Fader Modes: Nulling and Relative

As you move back and forth between operating faders in Audio Control and Virtual Control modes, you'll undoubtedly encounter situations where a fader's physical position doesn't accurately reflect its actual value, because the fader was moved from its position while in another mode.

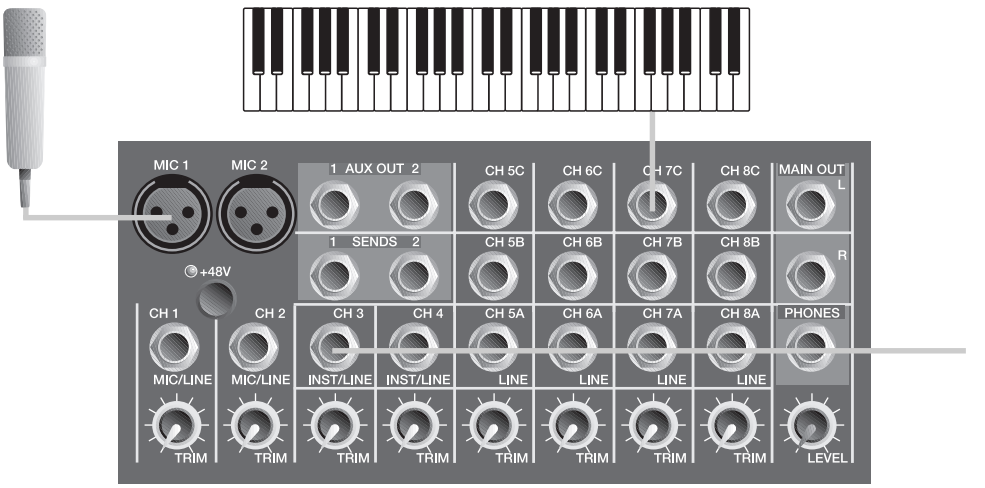



To help you reconcile between a fader's position and its actual value, the EZbus utilizes a fader nulling mode, wherein moving a fader will not change the value of the parameter being controlled (either a MIDI parameter when in Virtual mode or the volume of a Primary Audio Channel when in Audio mode) until the fader passes the physical position associated with the current parameter value. The nulling action is in effect regardless of the direction of the fader movement.

You can also operate the fader in Relative mode, wherein moving a fader causes an immediate change in the parameter value relative to the current value, but without regard for the actual fader position. You can access Relative mode by pressing and holding a fader's SELECT switch as you move the fader.

# Tutorial 3: Using the EZbus as a Stand-Alone Digital Mixer

In this Tutorial we'll start by making basic audio connections, then take you through a series of EZbus functions: making channel and bus assignments, adjusting EQ and dynamics processing, setting levels, using Sends and Returns, and finally saving the audio signal routing and system parameter values as a complete Mix.



# What this Tutorial Covers:

- Connecting the EZbus to your audio playback system
- Connecting an analog audio source to the EZbus
- Connecting a digital audio source to the EZbus
- Recalling an EZbus Mix and making it the "Active" Mix
- Assigning an audio input source to a Primary Audio Channel
- Assigning a Primary Audio Channel to the Main and Alt Mix buses
- Assigning the Main Mix and Alt Mix buses to the analog and digital outputs
- Adjusting audio levels: the Main Mix fader
- Adjusting audio levels: the Primary Audio Channel fader and TRIM control
- Adjusting audio levels: the Alternate Mix master Level
- Adjusting the EQ of a Primary Audio Channel
- Adjusting the dynamics processor of a Primary Audio Channel
- Using Sends and Returns
- Naming and saving a Mix

# What You'll Need for this Tutorial:

### Part I

- The EZbus
- A sound source (musical instrument, microphone, etc.)
- A sound system (power amp and speakers, headphones, etc.)
- Assorted audio cables

### Part II

*All of the above and:*

- A recording device (ADAT, DAT recorder, etc.)

### Step 1: Connecting the EZbus to Your Audio Playback System

The two jacks labeled Main Out L and R located at the center top of the EZbus front panel are dedicated to carrying the signal from the EZbus Main Mix bus, which is the unit's main stereo "master" bus. As a rule, the audio signals from the Primary Audio Channels are routed to the Main Mix bus, making the Main Out jacks ideally suited for use as the "control room" monitor outputs.

Plug one end of an audio cable with standard ¼" phone plug connectors into the Main Out L jack, and the other end of the cable into the Left Channel input of your monitoring system. (If you're using powered monitors, plug the cable directly into the Left monitor.) Now plug a second cable into the Main Out R jack and your monitor system's Right Channel input.

**Note:** The EZbus Main Outs also accept balanced ¼" TRS (Tip/Ring/Sleeve) connectors, allowing you to set up a balanced audio system. Consult your audio system's owner's manual to see if this feature is supported.

If you're using headphones rather than a monitor system (*i.e.*, an amp and speakers), plug the headphones into the jack labeled PHONES at the center top of the EZbus front panel. The volume control for the phones is the knob labeled LEVEL immediately below the PHONES jack. As with the Main Outs, the PHONES output can also be used to monitor the Main Mix bus (as well as a variety of others sources).

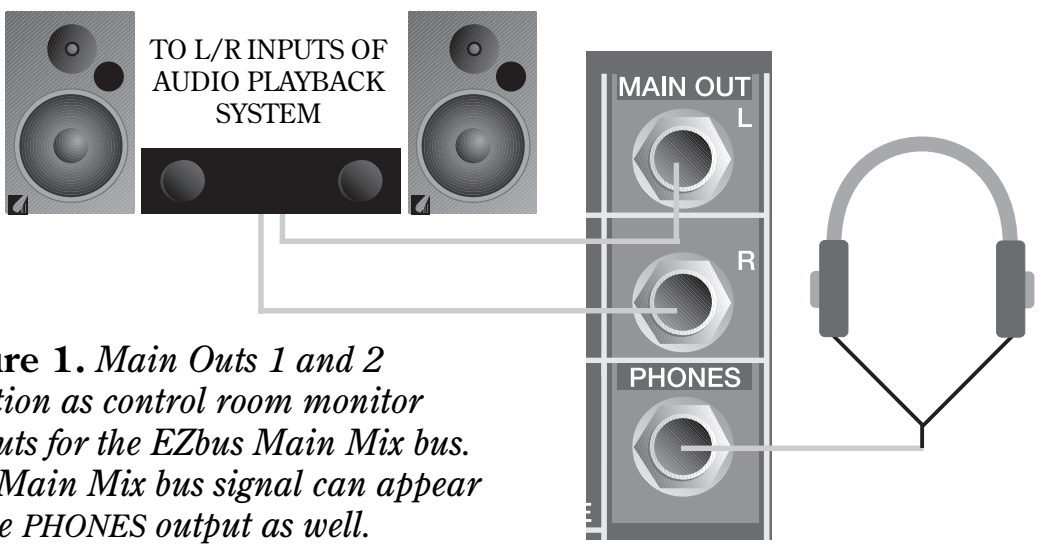
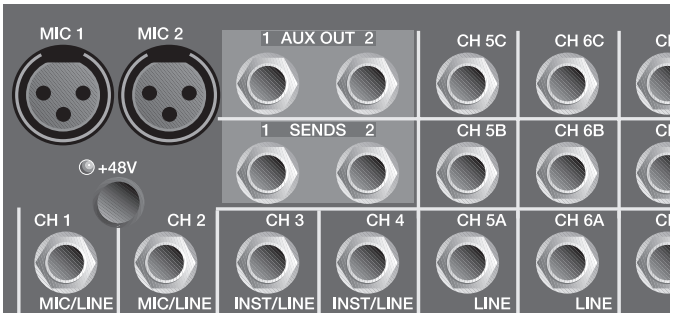



**Figure 1.** *Main Outs 1 and 2 function as control room monitor outputs for the EZbus Main Mix bus. The Main Mix bus signal can appear at the PHONES output as well.*

### Step 2: Connecting an Analog Audio Source to the EZbus

Each of the EZbus's analog input jacks is designed for a particular type of signal: microphone, instrument, or line. If you're using a microphone, plug it into the Mic 1 or the Mic 2 jack. If the microphone is a condenser type and requires phantom power, press the +48V switch located by the Mic 1 and 2 inputs. When the LED next to the switch is lit, phantom power is being supplied to the microphone(s).

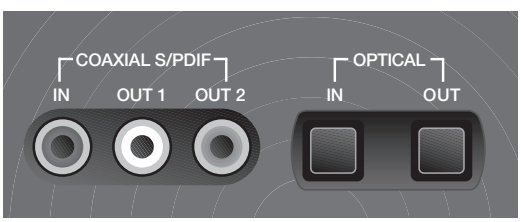
If your source is an unamplified electric guitar, bass, or other instrument that requires an instrument level input, plug it into either the Channel 3 input or the Channel 4 input.



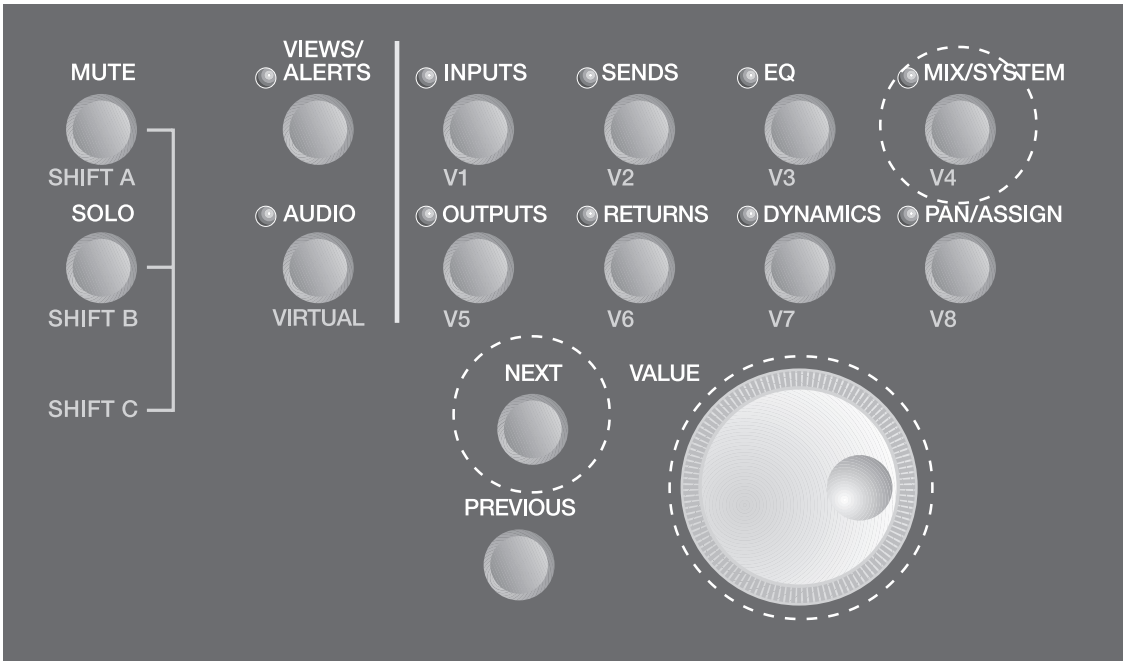

All other line level sources—keyboards, drum machines, CD players, and the like—should be plugged into Channels 5, 6, 7, and 8. It doesn't matter whether you use the A, B, or C inputs on these channels, as they are identical. (For more information on using the multiple inputs on these channels, see *The Analog Input/Output Section: Inputs*, in the EZbus Reference Manual PDF.)

### Step 3: Connecting a Digital Audio Source to the EZbus

The EZbus can accommodate a wide variety of digital audio sources, including ADATs, DAT machines, effects devices, and CD players.




S/PDIF connections can be made via the Optical or Coaxial inputs (or both); ADAT connections are made, naturally, via the Optical input. For this Tutorial, you can plug any digital source into the appropriate input.




### Step 4: Recalling an EZbus Mix and Making it the "Active" Mix

The EZbus comes from the factory pre-programmed with a number of Mix configurations. Mix 31, *Tutorial 2*, is designed to familiarize you with the EZbus Mix architecture. The Mix contains no parameter assignments; rather, we'll be making all the assignments as we work our way through this Tutorial. At the end, we'll save the Mix so you can recall it for future use.

First we need to Recall Mix 31 to make it the "Active" Mix, that is, the Mix currently loaded into memory. This is done in the MIX menu, located in the Master Control section.

Press the MIX button; the LED next to the button will light, indicating that it is the active Master Control function. Pressing the NEXT button advances you through the available menu options. Press NEXT once, and the display will show:

```
  Select Mix: 00
"Welcome to EZbus"
```

Note that if you have recalled Mixes prior to following this Tutorial, the name and number of the Mix shown in the EZbus display may be different from this example.

The MIX LED will begin to flash.

Turn the VALUE wheel until Mix 31, *Tutorial 2*, appears in the display as shown below:

```
  Select Mix: 31?
"Tutorial 2      "
```

Double-click the MIX button to recall Mix 31 and make it the current Active Mix. The MIX LED will flash more quickly for a few moments while the new Mix is being loaded. The display will show:

```
 Recalling Mix: 31
```

The MIX LED will remain solidly lit once the loading is complete. The display will show:

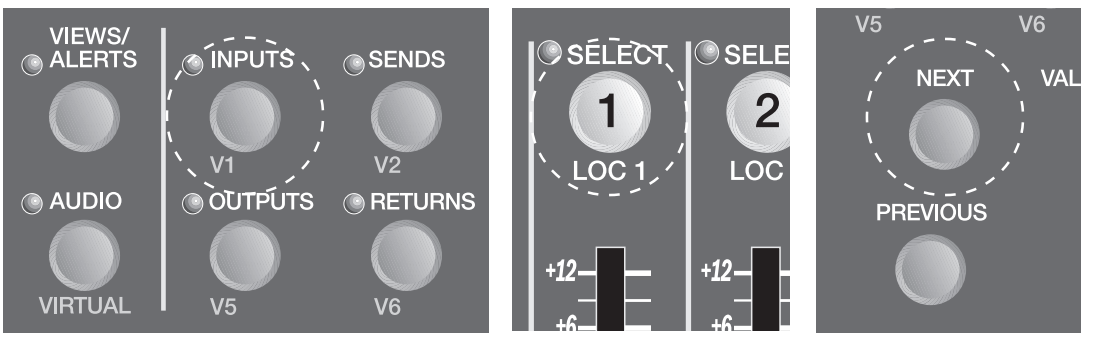
```
  Select Mix: 31
"Tutorial 2      "
```

### Step 5: Assigning an Audio Input Source to a Primary Audio Channel

You now have two audio sources, one analog and one digital, plugged into the EZbus. The next step is to assign these inputs to the EZbus's Primary Audio Channels.

Remember that any input, analog or digital, can be assigned to any of the Primary Audio Channels; just because you have something plugged into the Channel 4 input jack doesn't mean that you have to use Primary Audio Channel 4 for that signal. For this Tutorial, we'll use Primary Audio Channel 1 for the analog source, and Primary Audio Channels 2 and 3 for the digital source(s). (We're presuming that the digital source is a stereo S/PDIF signal. If your source is an ADAT, with multiple channels, you can simply assign the appropriate number of Primary Audio Channels using the methods described below.)

Which analog input gets assigned to Primary Audio Channel 1 depends, naturally, on your source audio (microphone, instrument, or line level).




Let's presume you're using a microphone, plugged into the Mic 1 jack (press the +48V button if your microphone requires phantom power). In the Master Control Section, press INPUTS, followed by the SELECT button of the Primary Audio Channel you wish to assign, in this case Channel 1. Notice that the LED next to the Channel 1 SELECT button is lit, indicating that Channel 1 has been selected.

Press NEXT repeatedly until the display shows:

```
Channel 1
Source: Off
```

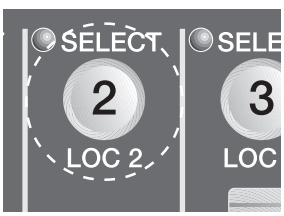
The following inputs are available as sources for Primary Audio Channel 1. Turn the VALUE wheel to select Mic/Line 1.

| | | |
|---|---|---|
| Off | Mic/Line 1 | Mic/Line 2 |
| Inst/Line 3 | Inst/Line 4 | Line 5(ABC) |
| Line 6(ABC) | Line7(ABC) | Line 8(ABC) |
| Optical 1 | Optical 2 | Optical 3 |
| Optical 4 | Optical 5 | Optical 6 |
| Optical 7 | Optical 8 | S/PDIF Left |
| S/PDIF Right | USB Left | USB Right |

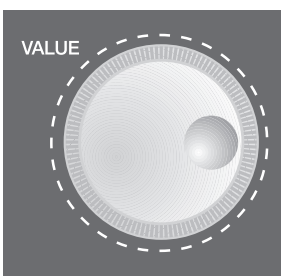
If you're using another audio source, such as a keyboard, select its associated input (Line 7 [ABC], for example), as the audio Source for Channel 1.

For the digital input(s), let's use Primary Audio Channels 2 and 3. While in the Channel 1 Source menu (as above) press the Channel 2 SELECT button. The display will now show:

```
Channel 2
Source: Off
```

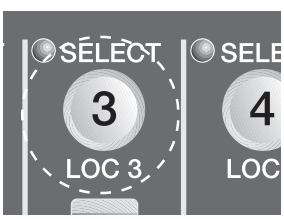



Turn the VALUE wheel to select your digital input source, *e.g.*, S/PDIF Left.




To now make the Channel 3 assignment, press the Channel 3 SELECT button. The display will show:

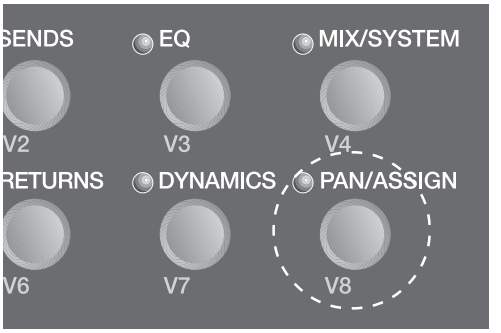
```
Channel 3
Source: Off
```

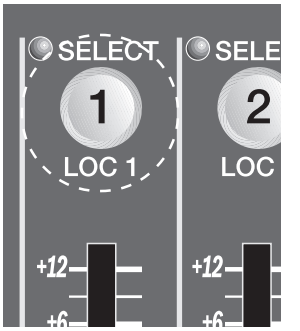


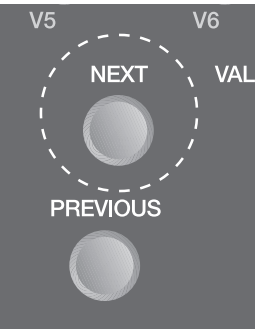

Turn the VALUE wheel to select your digital input source, *e.g.*, S/PDIF Right.

### Step 6: Assigning a Primary Audio Channel to the Main and Alt Mix Buses

At this point we have EZbus analog and digital inputs "talking" to Primary Audio Channels. Now we need to route the Primary Audio Channels to the Main Mix bus (which is routed to your audio monitoring system via Main Outs L and R and/or PHONES), so we can monitor those signals.

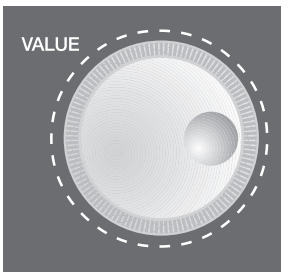



In the Master Control section, Press PAN/ASSIGN, followed by the SELECT button of Primary Audio Channel 1. Then press the NEXT button repeatedly until the display shows:

```
Channel 1
Main Mix: Off
```




Two options are available, as shown below. Turn the VALUE wheel to select "On."

```
Off                    On
```

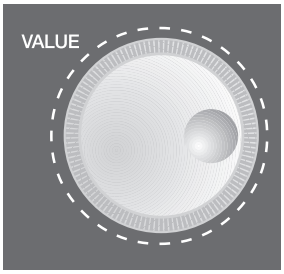
The display will now show:

```
Channel 1
Main Mix: On
```

Now for Channel 2. Press the Channel 2 SELECT button.

The display will show:

```
Channel 2
Main Mix: Off
```




Turn the VALUE wheel to select “On.”

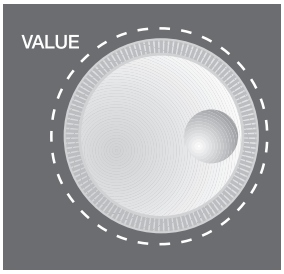
```
          Off                    On
```

The display will now show:

```
Channel 2
Main Mix: On
```

And lastly, Channel 3.
Press the Channel 3 SELECT button.
The display will show:

```
Channel 3
Main Mix: Off
```



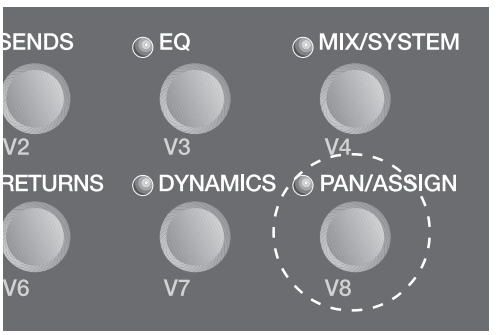

Turn the VALUE wheel to select “On.”

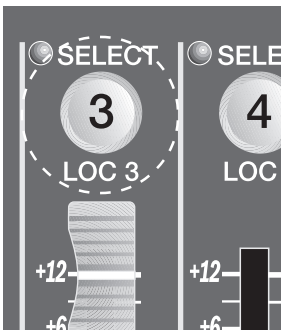
```
          Off                    On
```

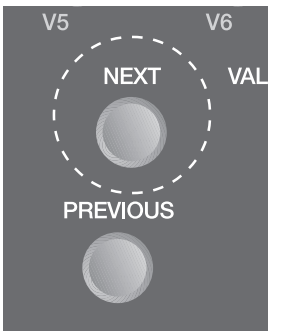
The display will now show:

```
Channel 3
Main Mix: On
```

You may also wish to assign one or more of the Primary Audio Channels to the Alternate (Alt) Mix bus. This second bus can be used for creating stage monitor or headphone mixes, as a record send, or for any application where you need a mix bus that's independent of the Main Mix bus. The Alt Mix bus signal can be assigned to any of the hardware outputs listed under OUTPUTS in the Master Control section.

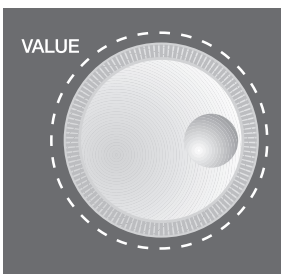



To assign a Primary Audio Channel to the Alt Mix bus, press PAN/ASSIGN, followed by the SELECT button of the Channel you wish to assign. Then press the NEXT button repeatedly until the display shows:

```
Channel 1
Alternate Mix: Off
```




Turn the VALUE wheel to select "On."

```
Off                    On
```

The display will now show:

```
Channel 1
Alternate Mix: On
```

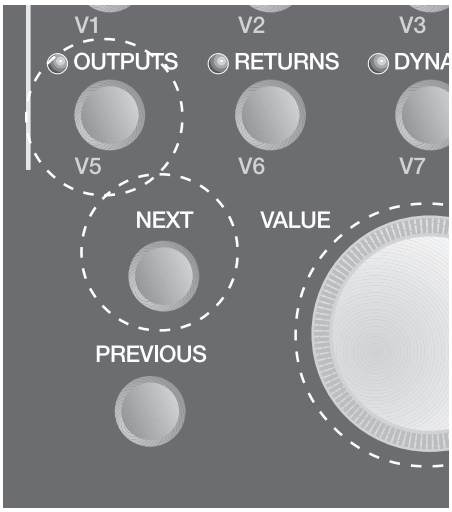
Continue making Channel assignments to the Alt Mix bus as needed, using the Channels SELECT buttons, as above.

### Step 7: Assigning the Main and Alt Mix Buses to the Analog and Digital Outputs

As mentioned in Step 1, the signal from the Main Mix bus always appears at the Main Out L and R jacks, so it's not necessary to make any output assignments to do simple control room monitoring. For more complex applications, however, you can route the Main Mix signal to the AUX 1 & 2, PHONES, S/PDIF 1 and 2, Optical, and USB outputs. Similarly, the Alt Mix bus signal can be routed to multiple outputs.

In this section, we'll route the Main Mix to the S/PDIF 1 output, and the Alt Mix to the Aux Out 1 and 2 jacks.

In the Master Control section press OUTPUTS, followed by NEXT repeatedly until the display shows:




```
S/PDIF Transmitter 1
Source: Sends 1&2
```

Use the VALUE wheel to select Main Mix as the Source for the S/PDIF Out 1 jack:

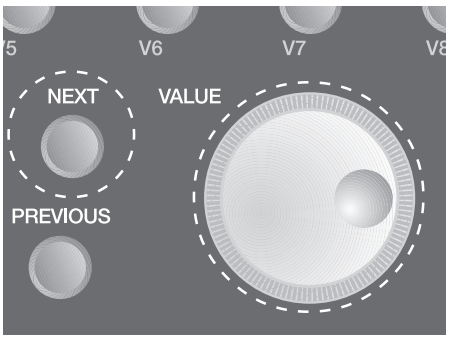
```
Main Mix  Alt Mix  Sends 1&2  Sends 3&4
```

The display will show:

```
S/PDIF Transmitter 1
Source: Main Mix
```

Now for the Alt Mix assignment.
Press NEXT repeatedly until the display shows:

```
Auxiliary Out Jacks
Source: Sends 3&4
```



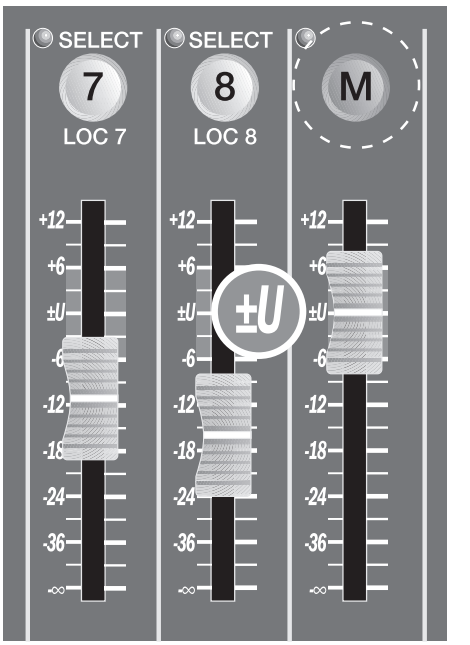

Use the VALUE wheel to select Altrnate Mix as the audio source for the AUX OUT 1 and 2 jacks. The display will show:

```
Auxiliary Out Jacks
Source: Altrnate Mix
```

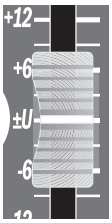
Now that the audio signals plugged into the EZbus are routed to the Primary Audio Channels, and the signals from those Channels are appearing at one or more hardware outputs, its time to turn our attention to signal levels.

### Step 8: Adjusting Audio Levels: The Main Mix and Primary Audio Channel Faders

The Main Mix fader, distinguished from the Primary Audio Channel faders by its blue "M" SELECT button, controls the volume of the Main Mix bus signal. We're using the Main Mix bus strictly for control room monitoring, so the position of the fader isn't absolutely critical. As a rule, however, the fader should be set at its ±U (unity gain) mark. So for now, set it there; if your playback level turns out to be too soft or too loud, you can adjust it later.



Now set the Channel 1 fader to its ±U (unity gain) position. As with the Main Mix fader, the position of the channel fader will only affect playback volume, not the level of the signal going to the computer. This allows you to easily create a monitor mix without adversely affecting your record levels.

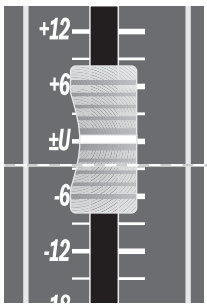



### Step 9: Adjusting Audio Levels: The Line Input TRIM Control

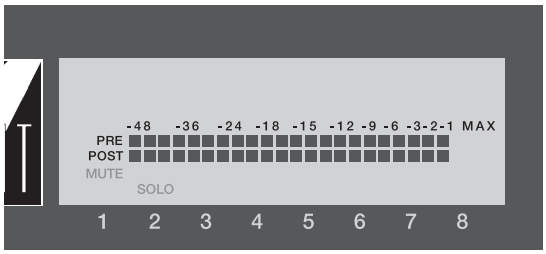
The goal here is to set this control so that noise is minimized, dynamic range is maximized, and a reasonable amount of headroom is maintained.

We've assigned the Mic 1 input to Primary Audio Channel 1, so first press the Channel 1 Select button; this will place the LCD meter into pre-fader mode, allowing you to visually monitor the level at the Channels input.

Next we'll set the Mic/Line input's TRIM control, which is used to adjust the gain of the analog signal that appears at the Channel input. In this example, we happen to be assigning an input to a like-numbered Primary Audio Channel. However, it's important to note that when adjusting the analog TRIM controls, you should always adjust the control associated with the input, not the channel to which the input is assigned. So, for example, if your signal is plugged into Line Input 5C, you'll be adjusting the Channel 5 TRIM control.



Begin by playing your audio source—singing into the microphone, playing the keyboard, and so on. Then, starting with the control rotated fully counter-clockwise, gradually increase the gain by turning the knob clockwise. As you turn the knob, keep an eye on the level meter in the LCD. The TRIM is in the correct position when the loudest part of your signal registers just below the MAX indicator on the LCD. At this point you'll have a nice, hot signal going to the channel (without overloading it), thereby maximizing signal-to-noise and dynamic range. If you think you might exceed this level



when actually performing, set the level so that the loudest peaks read at around –2dB on the LCD. This will give you a bit of headroom for transients and louder passages.

### Step 10: Adjusting Audio Levels: The Alternate Mix Master Level

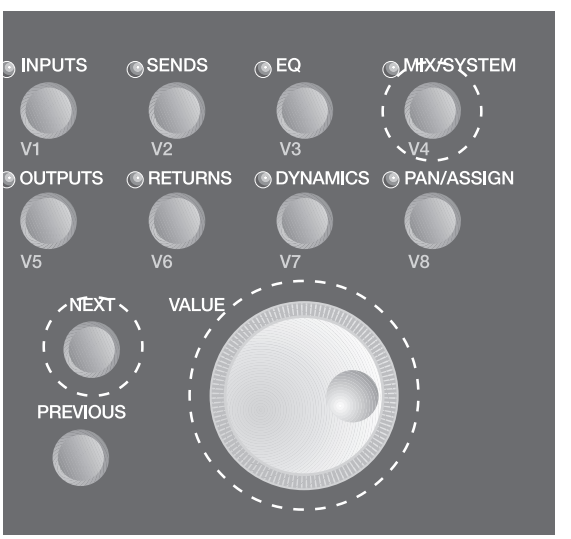
The critical—or non-critical—nature of this level adjustment is determined by your particular application. For headphone or stage monitor mixes, the adjustment is to taste. When the Alt Mix bus is used as a record send, the level adjustment must be made according to the meter readings on your recorder (*e.g.*, MDM, DAW, etc.), so as to optimize record levels.

In the Master Control section press MIX, followed by the NEXT button repeatedly until the display shows:

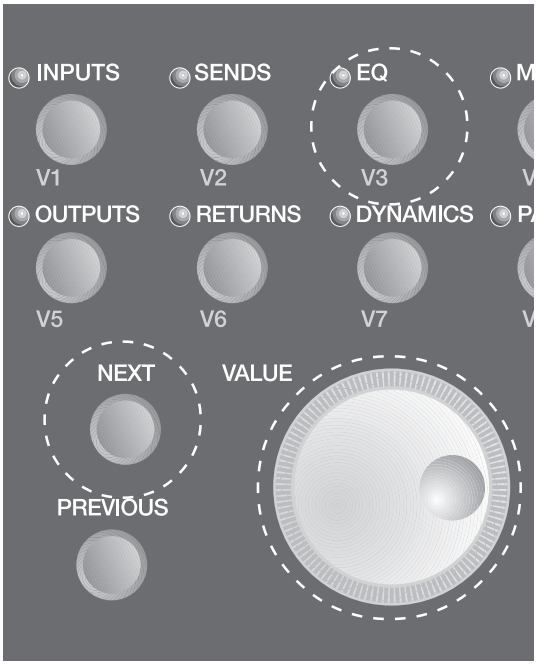
```
Alternate Mix
Master Level: Off
```

Now, while playing your audio source, turn the VALUE wheel clockwise to slowly bring up the Master level of the Alternate Mix bus.

Adjust the level to taste or, if the Alt Mix is being used as a record send, watch the level meters in your audio recording hardware/ software and continue to increase the level until the recorder's meters are reading at the recommended level.



### Step 11: Adjusting the EQ of a Primary Audio Channel



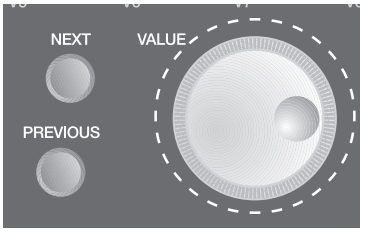

The EZbus features sophisticated three-band EQ, independently adjustable for each Primary Audio Channel. The mid band is fully parametric, providing control over the frequency setting, the amount of Cut or Boost, and the Q. Use this band to precisely fine-tune the frequency response of a signal. The other two bands provide Low- and High-shelving, useful for rolling off undesirable low frequencies (low shelving) and adding presence or "air" (high shelving) to a signal.

In this step we're going to add a little "fat" to Primary Audio Channel 1 (our analog input signal). For this we'll use the channel's parametric EQ, dialing in 6dB of gain at 250Hz, with a fairly wide Q setting. (Q controls the width of the frequency band at the cut/boost point. Higher Q settings limit the cut/boost to a narrow band of frequencies surrounding the selected frequency. Lower Q settings result in a wider band of frequencies being cut or boosted).

In its default state, a Primary Audio Channel's EQ status is Bypassed, that is, the audio completely bypasses the EQ circuit. So the first thing we need to do is Enable the EQ so we can hear our parameter changes acting upon the Primary Audio Channel signal.

In the Master Control section press EQ, followed by the SELECT button of Primary Audio Channel 1. The display will show:

```
Channel 1 EQ
Status: Bypassed
```




Use the VALUE wheel to enable the EQ.

```
    Bypassed                    Enabled
```

The display will now show:

```
Channel 1 EQ
Status: Enabled
```

The EQ is now enabled, so let's start by adjusting the frequency.
Press the NEXT button repeatedly until the display shows:

```
Channel 1 Mid-Sweep
Frequency:     1000Hz
```

The frequency parameter is used to precisely dial in to the target frequency. We want to select 250Hz, so turn the VALUE wheel until the display shows:

```
Channel 1 Mid-Sweep
Frequency:      250Hz
```

Now we'll add the 6dB of gain. Press the NEXT button.
The display will show:

```
Channel 1 Mid-Sweep
Cut/boost:  +00dB
```

Use the VALUE wheel to select +6dB of boost. The display will show:

```
Channel 1 Mid-Sweep
Cut/boost: +06dB
```

Lastly, we'll adjust the Q parameter. Since we're going for "fat," as opposed to cutting or boosting just a very narrow frequency range around 250Hz, we'll dial in 04, a fairly wide Q setting.

Press the NEXT button.
The display will show:

```
Channel 1 Mid-Sweep
Q: 0.0%
```

Use the VALUE wheel to dial in 04. The display will show:

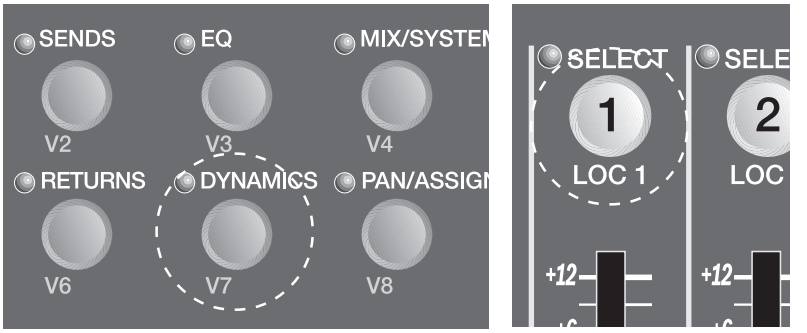
```
Channel 1 Mid-Sweep
Q: 0.4%
```

It's often useful to use a high Q setting when adjusting the frequency parameters to help you hone in on the particular frequency you're looking to cut or boost. Once you've found it, you can back the Q setting down to where it sounds more natural.

### Step 12: Adjusting the Dynamics Processor of a Primary Audio Channel

The EZbus provides dynamics processing, in the form of a compressor (soft knee type) and a noise gate, on each of the Primary Audio Channels. All are independently programmable. For this Tutorial we'll again do our processing on Primary Audio Channel 1. Let's start with the compressor.

The compressor is useful for taming sounds that have lots of loud peaks, and thereby run the risk of introducing clipping distortion. It's also good for fattening up bass tracks and for adding that polished "edge" to vocals.



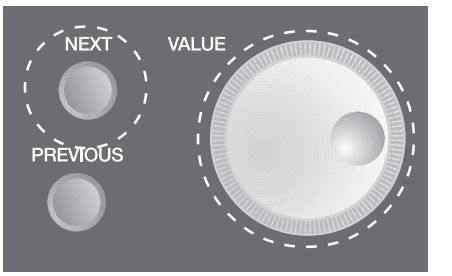

Press DYNAMICS, followed by the SELECT button of Primary Audio Channel 1. The display will show:

```
Channel 1
Dynamics: Bypassed
```

Use the VALUE wheel to Enable the compressor. The display will show:

```
Channel 1
Dynamics: Enabled
```

Now we'll set the compressor's Threshold level, that is, the volume level that the signal coming into the compressor must reach in order for the compressor to start working. Press the NEXT button repeatedly until the display shows:



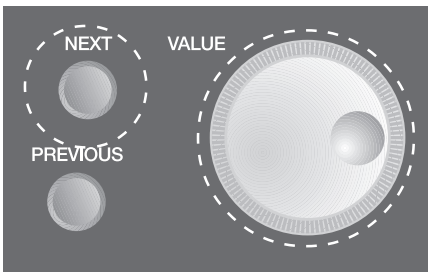
```
Channel 1 Compressor
Threshold: -40dB
```

Turn the VALUE wheel until the display reads

```
Channel 1 Compressor
Threshold: -10dB
```

With this setting the compressor will "kick in" when a sound is at a moderate volume level.

Next we'll adjust the Ratio parameter, which controls how much compression is applied to the signal. We'll dial in a ratio of 4:1—a "reasonable" ratio, in that neither too little nor too much compression is applied. Press the NEXT button. The display will show:




```
Channel 1 Compressor
Ratio: 1.1->1
```

Use the VALUE wheel to select 4:1 as the Ratio. The display will show:

```
Channel 1 Compressor
Ratio: 4.0->1
```

Next we'll set the Attack Time parameter, which determines how quickly the compressor reacts to sound that exceeds the Threshold level. Press the NEXT button. The display will show:

```
Channel 1 Compressor
Attack: 001 msec
```

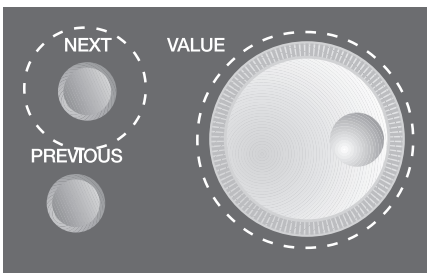
We'll set the Attack Time to be relatively quick (20ms). Turn the VALUE wheel until the display reads:

```
Channel 1 Compressor
Attack: 020 msec
```

Now to the Release Time parameter, which determines how quickly (or slowly) the compressor stops working when the sound level falls below the Threshold level. Press the NEXT button. The display will show:

```
Channel 1 Compressor
Release: 0200msec
```

Let's dial in a fairly slow release, around 700ms. Turn the VALUE wheel until the display reads:



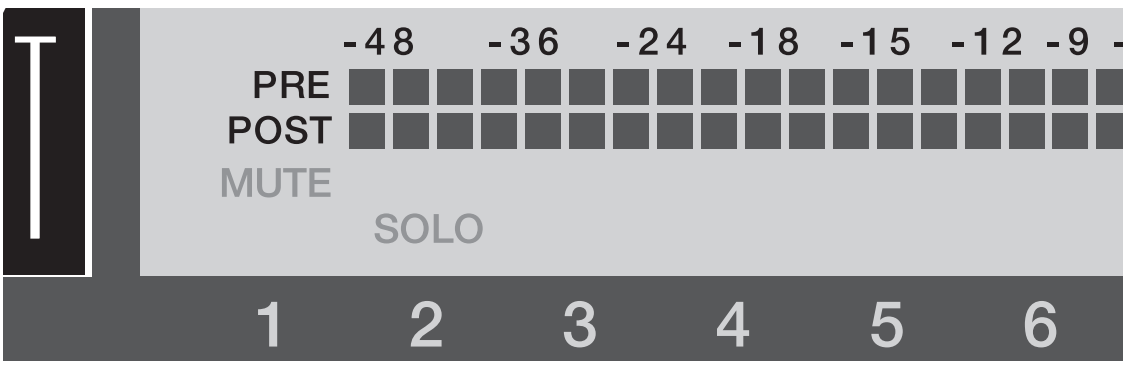

```
Channel 1 Compressor
Release:  700msec
```

A natural byproduct of compressing a signal is a reduction in the signal's level. To compensate for this reduction, you'll need to adjust the channel fader. Higher compression ratios result in greater gain reduction, so the proper fader setting depends on

how much compression you're adding and how loud you want the signal to be. We'll use the EZbus meters to help set the proper fader level.

You'll notice that just to the left of the –48 mark in the EZbus LCD the two meter graphs are labeled Pre and Post. When you're in DYNAMICS mode, the level meters change from displaying the stereo Main Mix signal level to displaying the Pre (before the compressor) and the Post (after the compressor) signal levels. This allows you to monitor how much gain reduction your compression settings produce. You can then adjust the channel fader to compensate for the reduction. To see how this works, play your audio source and raise the channel fader slowly.

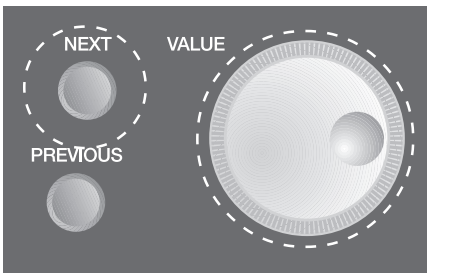
As you do so, watch the Post level meter. Continue to increase the fader level until the Post meter reads at the same level as the Pre meter. When the two levels match, you've compressed the signal to suppress peaks, even out dynamics, or add texture, without compromising the overall level of the signal.




Now we'll turn our attention to the Noise Gate. The gate can be used, as its name implies, to control noisy signals. It does this by muting the signal whenever the level falls below the level set by the Threshold parameter. The gate can also be used to create effects, such as the classic "gated reverb," in which the natural decay of the reverb tail is abruptly cut off by the gate, creating a rhythmic, percussive effect.

We'll begin by setting the gate's Threshold level. From the previous menu, press NEXT repeatedly until the display shows:

```
Channel 1 Noise Gate
Threshold: Off
```




For this Tutorial we'll assume that we're setting the gate to control a noisy source that has no desirable signal below –45dB, so we want the gate to mute everything below that level. Use the VALUE wheel to set the Threshold parameter to –45dB.

```
Channel 1 Noise Gate
Threshold: -45dB
```

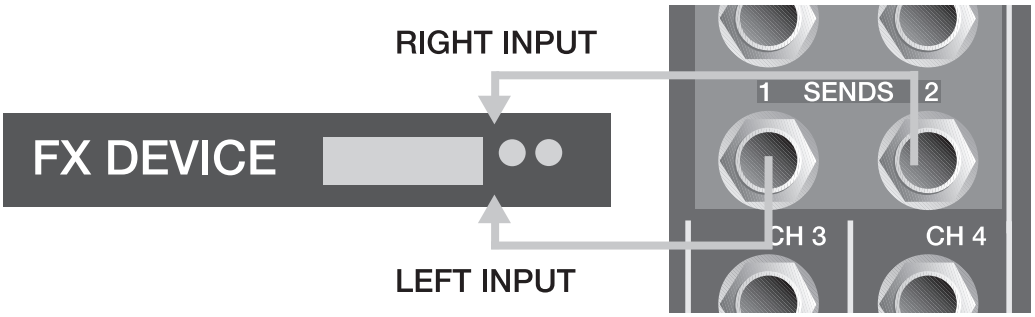
Now we'll set the Decay Time parameter, which controls how quickly the gate closes when the Threshold level reached. Press the NEXT button. The display will show:

```
Channel 1 Noise Gate
Decay: 0100 msec
```

The Decay parameter is adjustable in 100 millisecond increments. Use the VALUE wheel to set the Decay parameter to a value that is musically appropriate for your source material.

### Step 13: Using Sends

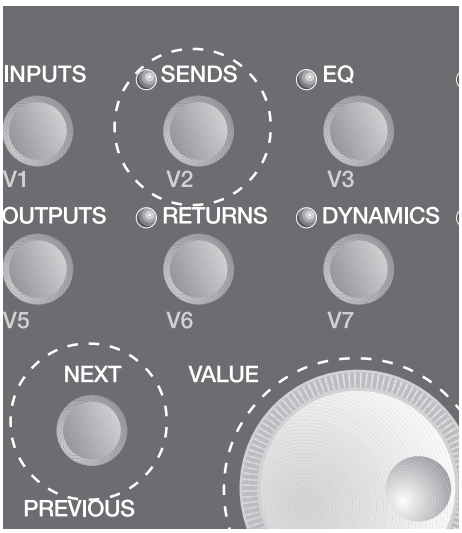
The EZbus has four Sends, independently programmable pre- or post-fader, which are useful for routing signals to effect devices, setting up headphone mixes, routing a signal to a recording device, and the like. In this step, we'll route Send 1 on Primary Audio Channel 1 to an external effects device, and bring the signal from the device back into the EZbus via the Returns (in Step 14). The analog output jacks on the EZbus front panel labeled SENDS 1 and 2 always carry the audio signals from Sends 1 and 2. So we'll begin by plugging the output of the SEND 1 jack into the left channel input of your effects device, and the output of the SEND 2 jack into your effect device's right channel input.




Now we'll set the Master Output Level of Send 1.

Press SENDS, followed by NEXT:
The display will show:

```
Send 1
Master Level: +00dB
```



We'll assume that the device we're sending to is a –10dB device. Turn the VALUE wheel to select –10dB for the Send 1 Master Level. The display will show:

```
Send 1
Master Level: -10dB
```

Press NEXT repeatedly to get to the Send 1 Pre/Post fader mode menu. The display will show:

```
Send 1
Mode: Pre Fader
```

We want to use Pre-fader mode so that our fader movements won't affect the Send level. So we'll leave this parameter as it is and move ahead and assign the signal from Primary Audio Channel 1 to Send 1. Press NEXT repeatedly until the display shows:

```
Channel 1 to Send 1
Level: Off
```

Use the VALUE wheel to set a Level that registers on your effects device's meters at the level recommended in the device's owner's manual.

If your effects processor is a stereo device, repeat the above steps with Send 2. Simply press NEXT repeatedly to get to the Send 2 menus.

### Step 14: Usings Returns

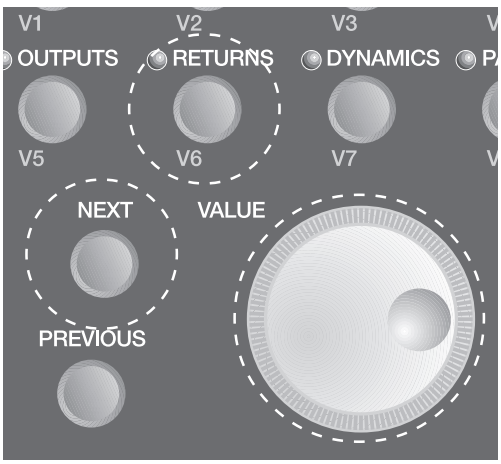
The EZbus has three Returns (two mono and one stereo), which can be used to bring the signals from external effects devices back into the EZbus, or as general purpose inputs. All of the Returns feed directly to the Main Mix bus, making it a simple matter to monitor their signals.

Now we'll bring the audio coming back from the effects processor into the EZbus using a Return. We'll use Return 3&4 because it's stereo (Returns 1 and 2 are mono). First we need to make our analog audio connections.

Start by plugging the left and right channel outputs of your effects device into EZbus analog line inputs 7C and 8C, respectively. Set up those inputs' faders and TRIM controls according to the guidelines in Steps 8 and 9.

Next, in the Master Control Section, press RETURNS, followed by the NEXT button repeatedly until the display shows:

```
Return 3&4 (stereo)
Source: Off
```




Turn the VALUE wheel to select Line 7&8 (ABC) as the audio Source for Return 3/4. The display will read:

```
Return 3&4 (stereo)
Source: Line 7&8 (ABC)
```

All that's left to do is set the Return Level control.
Press the NEXT button repeatedly until the display shows:

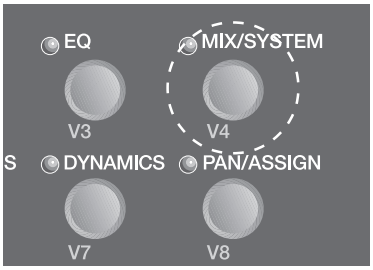
```
Return 3&4 (stereo)
Level: Off
```

Gradually turn the VALUE wheel clockwise to increase the Return 3/4 level. There is no "correct" setting. Simply adjust the level to provide the desired volume.

### Step 15: Naming and Saving a Mix

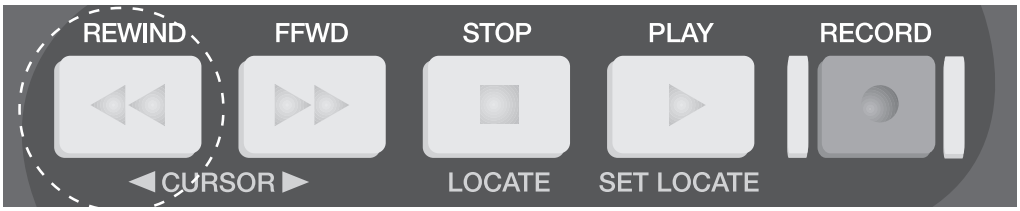
For our final step we'll name and save the Mix we've created in this Tutorial. The EZbus provides 32 locations for storing Mixes, and Mixes can be recalled, edited, and resaved.

In the Master Control section, press MIX/SYSTEM, followed by NEXT repeatedly until the display shows:

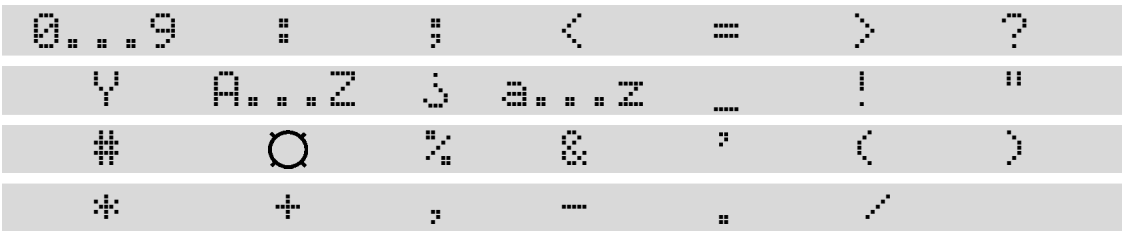



The MIX/SYSTEM LED will begin to flash.

Press the REWIND button in the transport controls; the cursor in the LCD will move to under the "T" in Tutorial.




Use the VALUE wheel to select one of the following alphanumeric characters:



Use the FFWD button to advance the cursor to the next character space. Use the REWIND button to move the cursor to the previous character space. Names can be up to 16 characters long.

When the name is complete, double-click the MIX/SYSTEM button to store the name and all the Mix settings to memory location 31. Or, you can use the VALUE wheel to select a new location (00–31) prior to double-clicking MIX/SYSTEM.

When you double-click the MIX/SYSTEM button, its LED will flash more quickly for a few moments while the new name and Mix are being stored. The display will show:

```
  Storing Mix 31!
```

The MIX/SYSTEM LED will remain solidly lit once the Mix has been stored. The display will then show:

```
  Select Mix: 31
"My Other New Mix "
```

# Contacting Customer Service

If you experience any trouble with your EZbus, please call the Event Electronics Customer Service department at 805-566-7777, ext. 5. Before calling, however, we ask that you please consult the Technical Support section of our Web site, www.event1.com.

If you believe your EZbus is in need of repair, please contact the Event Electronics Customer Service department for a Return Authorization Number (RA#). We can accept for servicing only those units that are accompanied by an RA#. Units shipped without an RA# number will be refused.